KYOCERA

YASHICA 107 MULTI PROGRAM

Repair Manual

KYOCERA CORPORATION
Optical Equipments Division, Service Dept.

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SPECIFICATIONS

Type: 35mm focal-plane shutter AE single-lens reflex camera with automatic film advance.
Picture size: 24 × 36 mm
Lens Mount: Contax/Yashica bayonet mount.
Shutter: Electronic vertical-travel focal-plane shutter.
Shutter Speeds: Auto: 16 sec. to 1/2000 sec.; Manual: 1 sec. to 1/2000 sec. (12 steps); X sync; and B (Bulb).
Flash synchronization: X contct; shutter speed automatically switches to 1/90 sec. when dedicated flash is fully charged; synchronizes at 1/90 sec. or slower in manual mode; flash mark "ϟ" turns on with flash charged.
Self-Timer: Quartz-timed electronic self-timer with 10 sec. delay. LED turns on during operation, blinks 2 sec. before activating shutter. Cancellable during countdown.
Shutter Release: Electromagnetic release with release socket.
Exposure Control: (1) Normal Program AE mode; (2) High-speed Program AE mode; (3) Low-speed Program AE mode; (4) Manual Exposure mode; and (5) Manual Flash mode.
Film Speed Settings: Automatic setting for DX film within the range ISO 50-3200 (for non-DX film, setting is ISO 100)
Metering System: TTL center-weighted by SPD (Silicon Photo Diode) cells.
Metering Range: EV 2–19 (ISO 100, f1.4 lens). Metering switch activated by lightly touching shutter release button (automatically cutting off after 8 sec.)
Exposure Compensation: +1.5 EV
Viewfinder: Eye-level, pentaprism type. Show 92% of picture area. 0.91 magnification (using 50mm lens set at infinity).
Focusing Screen: Horizontal split-image/microprism collar on matte screen.
Viewfinder Display: LED display positioned to the right of viewing area.
(P): Program AE indicator. (6 Hz blinking indicates incorrect aperture setting.)
(M): Manual Mode.
(ϟ): Flash Charge-completion display. (6 Hz blinking indicates camera shake warning—For Program AE modes only).
Film winding: Automatic loading with built-in motor; automatic film advance; automatic film positioning to first frame.
Film Rewind: Pushing the rewind release button and using the film rewind crank.
Exposure Counter: Auto resetting, additive type.
Camera Back: Opened by pushing down camera back lock; detachable; provided with film check window.
Power Source: Uses four 1.5v size AAA alkaline batteries.
Battery Check: Self-timer LED, "P", "M" and "ϟ" mark LEDS used to check battery condition.
Others: Direct contact for data back.
Dimensions: 149(W)×93(H)×52(D)mm(5-7/8×3-11/16×2-1/16in.)
Weight: 500 g (1.1 lbs) (without batteries).

**The above specifications and design are subject to change without notice.*

A. OUTLINE

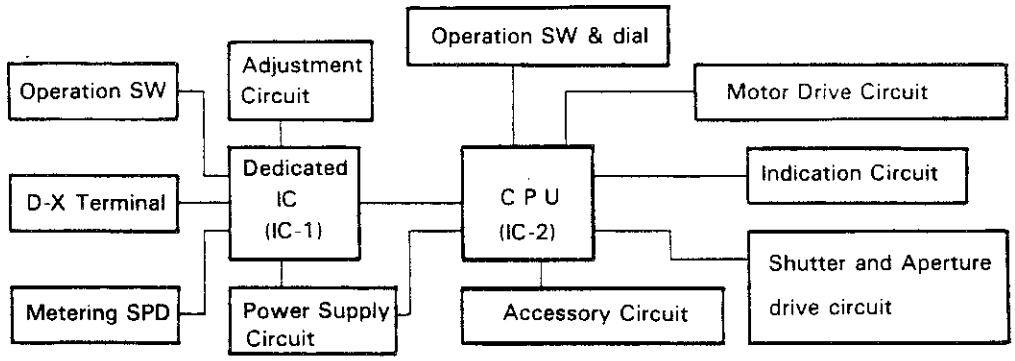
A-1. GENERAL DESCRIPTION OF CIRCUIT OPERATION

The 107 MULTI PROGRAM circuit is centered around the dedicated IC and CPU, and is comprised of the various peripheral circuits shown in the block diagram.

The dedicated IC controls the power supply by sending a start signal to the power supply circuit by input of a SW, the cause of power ON. The power supply is also turned OFF by the power off signal from the CPU. This IC also logarithm compressed the output of the metering SPD, adds the ISO data, calculates the program curve, A/D converts the results, and sends this data to the CPU as the metering data. During processing of this metering value, processing is performed to eliminate the effects of light sources such as temperature and fluorescent lamps which change at regular intervals. This IC also performs internal processing while receiving adjustment input for reference voltage, metering, program curve, battery check, etc.

The CPU controls the motors for aperture control, mirror up, and winding, and controls the shutter magnet for unified control of all camera operations. The CPU also determines the F stop by the reception of metering data from the dedicated IC and calculates the shutter speed. Completion of Flash battery charging is detected and the shutter speed is automatically set to 1/90 seconds.

System Circuit Block Diagram



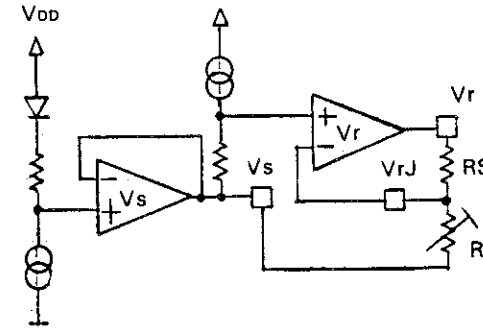
(Vs, Vr)

Vs: Regulated voltage power supply

- Approximately 1.2V from V_{DD}, forms reference point for other amps.

Vr: Regulated voltage power supply

- Regulated current based on Vs. The voltage can be varied by changing the resistance of VrJ. Vs → Vr : 468mV
- These have temperature characteristics.



Battery Check

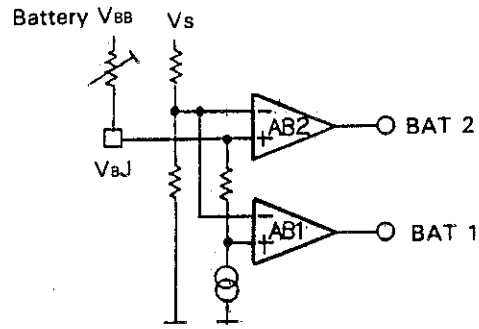
Battery: V_{BB}

When V_{BB} drops and V_{BJ} also drops, BAT1 first goes to "L".

BAT2 also goes to "L" when Vbj drops further.

The difference between BAT1 and 2 is approximately 288mV.

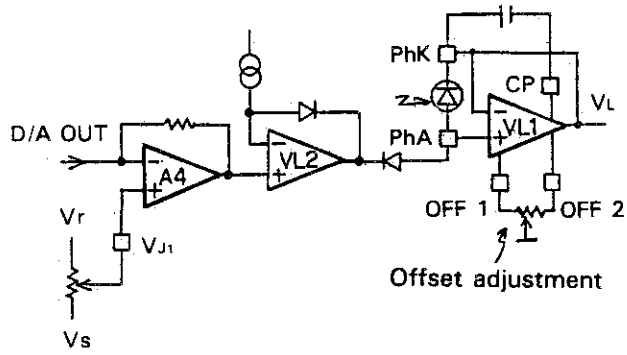
	BAT2	BAT1
normal (3.9V)	H	H
alarm (3.5V)	H	L
stop (3.1V)	L	L



Metering

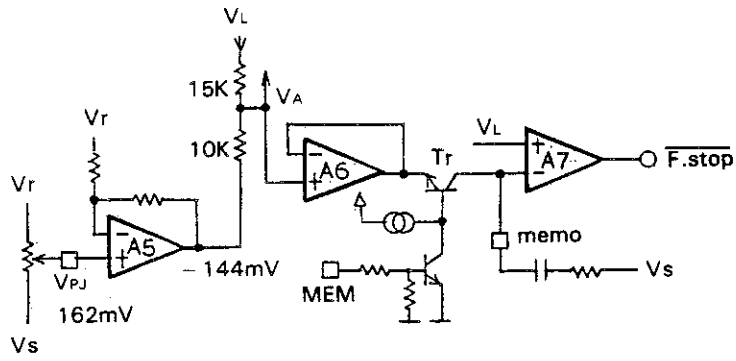
V_L is clculated by compressing the brightness of the light and converting to voltage, and from the current determined by the DX code and the light intensity adjustment voltage.

- V_L changes approximately 18mV for each 1EV change in the brightness.



Program, F Stop

- The program voltage V_{PJ} and brightness voltage V_L are calculated.
  V_L changes 18mV for each 1EV change in the brightness, and Va changes (18 × 2/5) mV for each 1EV change in the brightness.
- When P1, V_{PJ} is set to 162mV. V_L is set to −144mV by BLV 6.
- At A7, V_L and the Vmemo voltage are compared and the F.stop signal is output.
  When Tr is ON (when MEM is "L"), F.stop is "L" when comparison of the above voltages is darker than BLV6 for P and "H" when brighter.



A/D Conversion of Metering

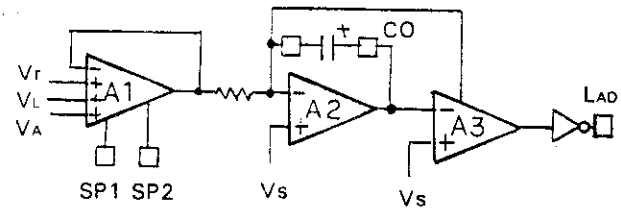
Selection of Vr, V_L, and V_A is by SP1 and SP2, and dual slope integration is performed. (approx. 10ms, 10 ms)

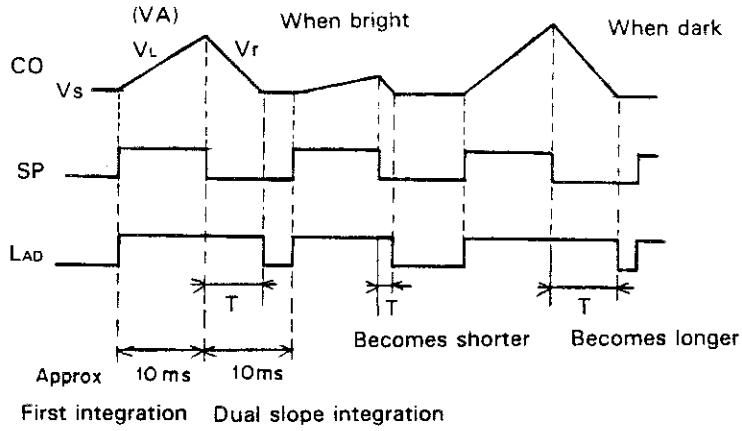
V_L selected when SP1 is "H"

V_A selected when SP2 is "H"

Vr selected when "L"

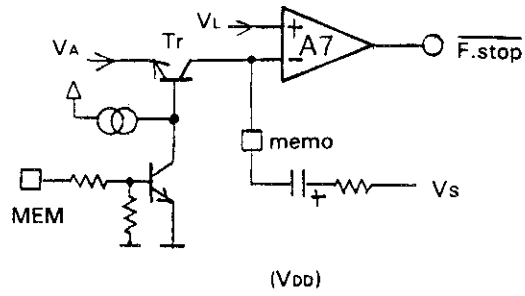
V_A is 2/5 V_L and has the same operation except that the amount of change in L_{AD} according to brightness is different.

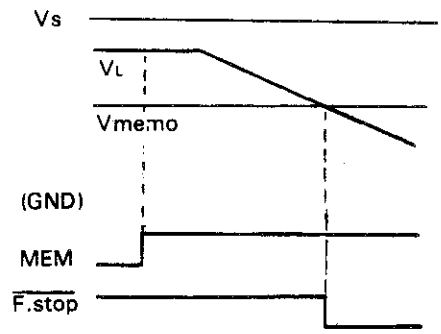




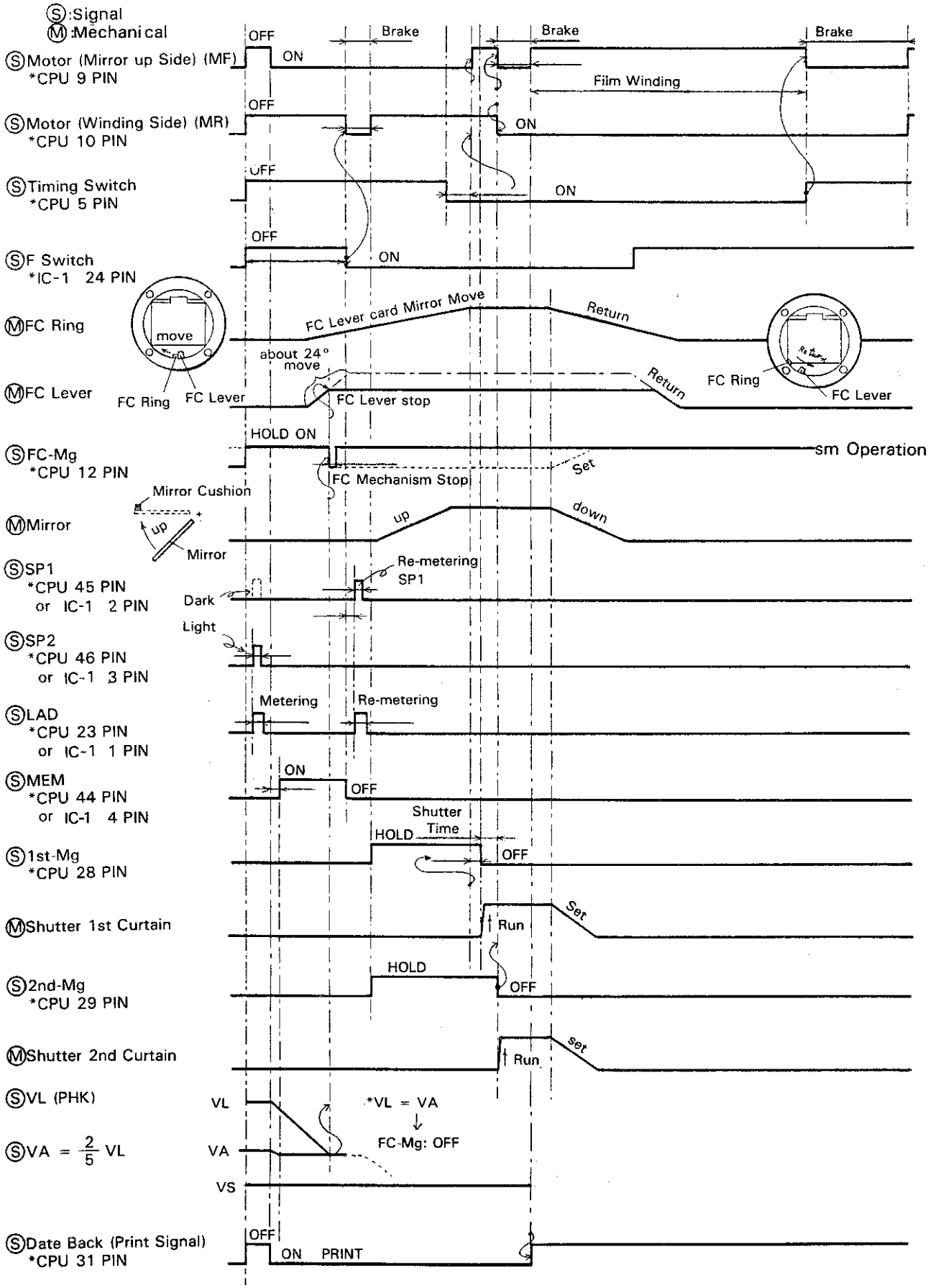
F.stop

- When MEM goes to "H", Tr is switched OFF and the V_A voltage is held by V_{MEMO}.
- When the lens aperture become smaller, V_L drops further and F.stop goes to "L" when it becomes less than Vmemo. (Forming signal for operating F-Mg)

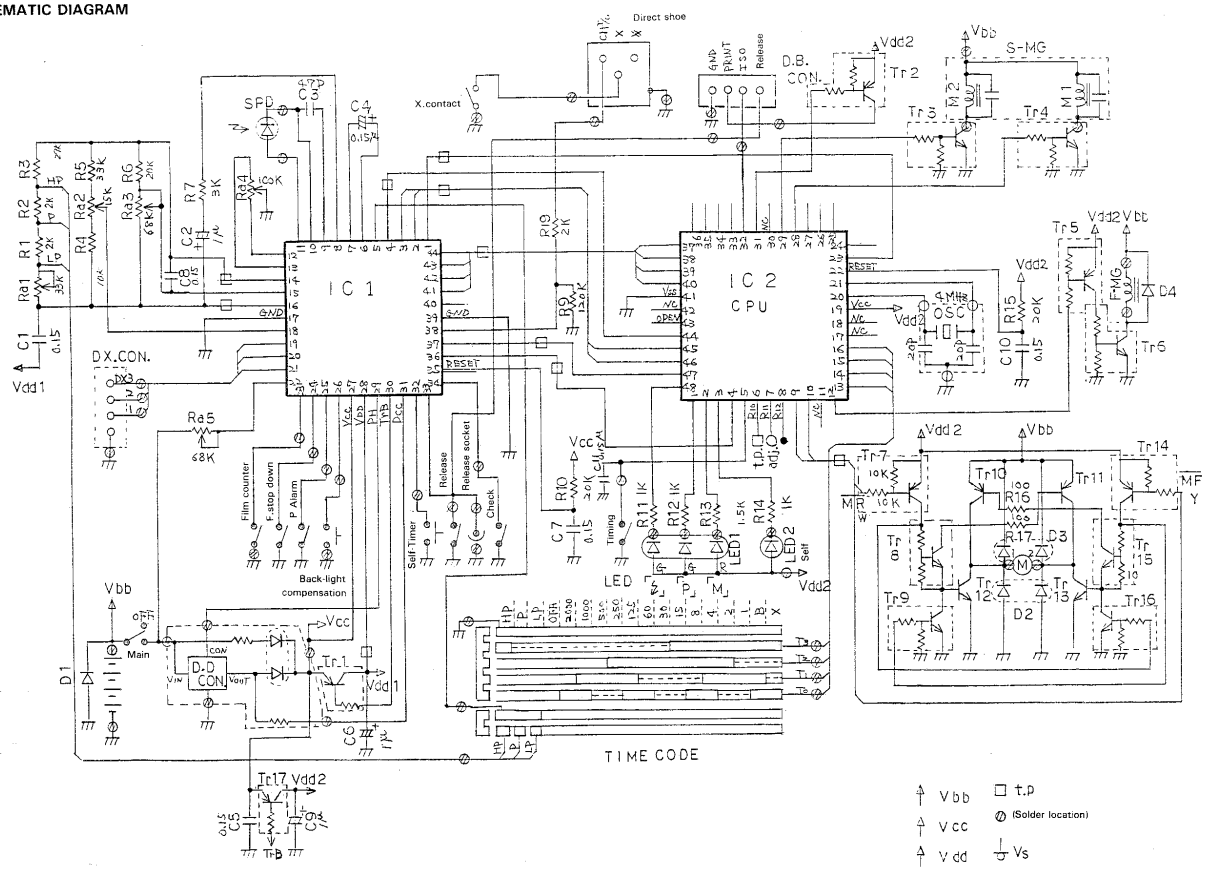




TIMING CHART



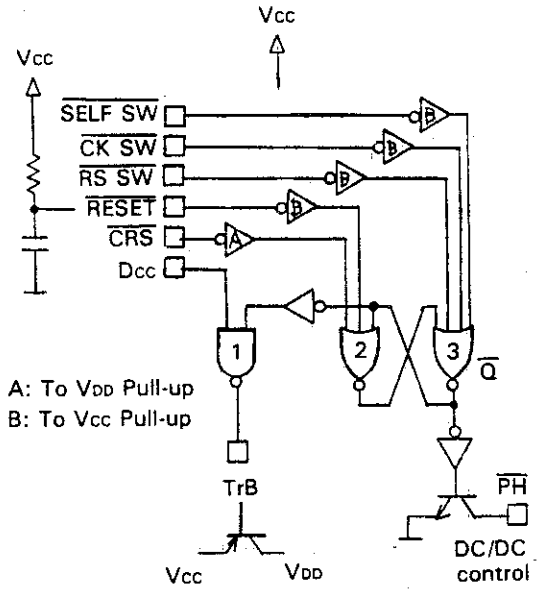
SCHEMATIC DIAGRAM



Power Supply Control (Logic Section)

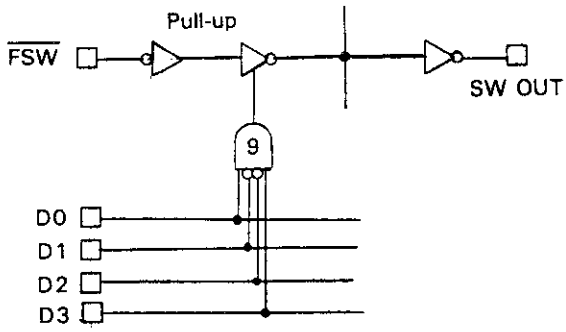
A: V_{DD} pull-up
B: V_{CC} pull-up DC-DC control Pull-up

- When the power supply is turned on, RESET is "L" for the C, R time, and the output of (2) becomes "L".
- As all inputs of (3) are "L", the output becomes "H" and PH is OFF, (1) is also inhibited at "L", and TrB goes to "H" (OFF).
  When either the SELF, CK, or RS SW goes to "L", the output of (3) goes to "L" and PH is switched ON.
  (1) is enabled for reception of "H", and TrB goes to "L" (ON) if Dcc is "H".

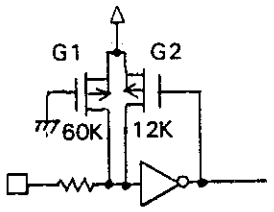


Switch reception

- Input selection is possible by the input of codes D3 through D0, and output is to SW OUT.
  Some of the inputs may be inverted.



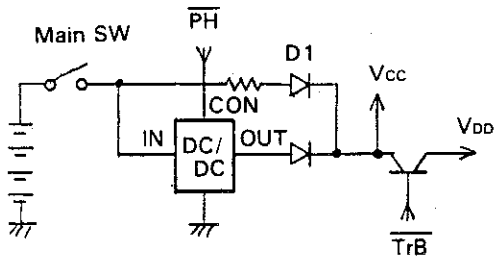
- Pull-up
  FET, PCH (ON of gate is "L")
  G1 is always ON, performing pull-up.
  G2 is ON when the input is H (nothing), reducing the pull-up time and lowering the impedance.
  If the input goes to "L", the element is switched OFF reducing current.



Power Supply Section

- There is output from the DC/DC converter when the PH (CON) terminal is "L". (0V)

When the main SW is turned ON (power ON), Vcc rises at the current which passed through D1, the IC is reset, and PH and TrB are switched OFF (H). There is a release check by Vcc, and the self-SW terminals are pulled up.
Next, when any of the switches goes to ON (L), PH goes to "L" and there is output from the DC/DC. When the output rises (H), Dcc also goes to "H", TrB is set to "L" by the IC, and PH is switched ON (V_{DD} ON).



DC/DC converter

V_{IN} 2.5–6.5V
Vcc 4.5–5.2V

A-2. GENERAL DESCRIPTION OF MECHANISM OPERATION (MIRROR-UP AND WINDING)

A-2-1. Outline of Mechanism Operation

Diagrams of the mirror-up, aperture control, and winding mechanisms of the 107 are shown in Fig. 1 and Fig. 2.

Mirror-up and winding are driven in the 107 by a single motor. Mirror-up is driven by forward rotation and winding by reverse rotation. This sequence is shown in Fig. 3 and Fig. 4.

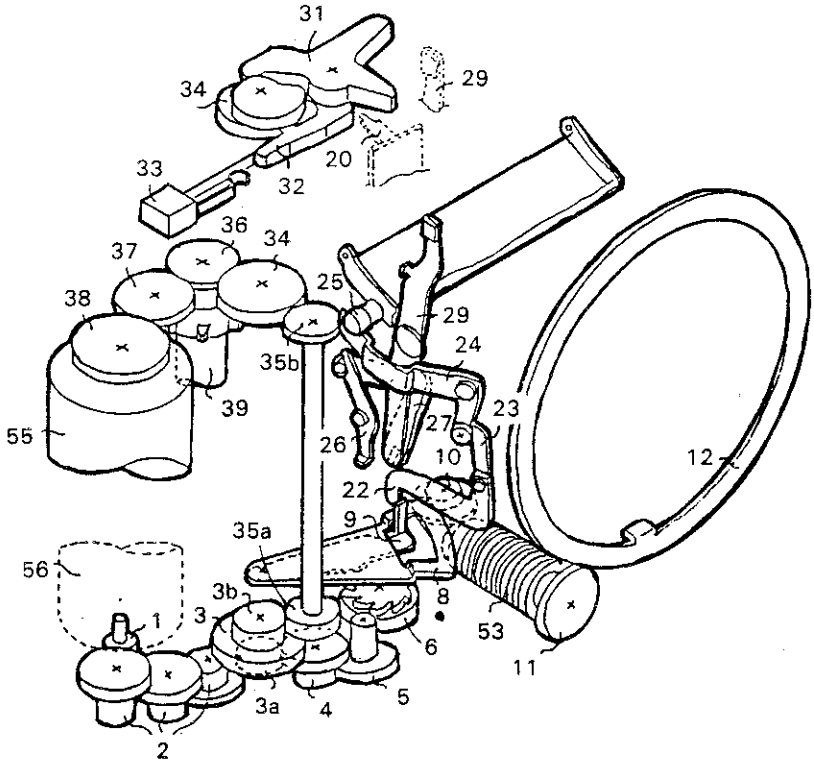


Fig. 1 Diagram of Mirror Up and Winding

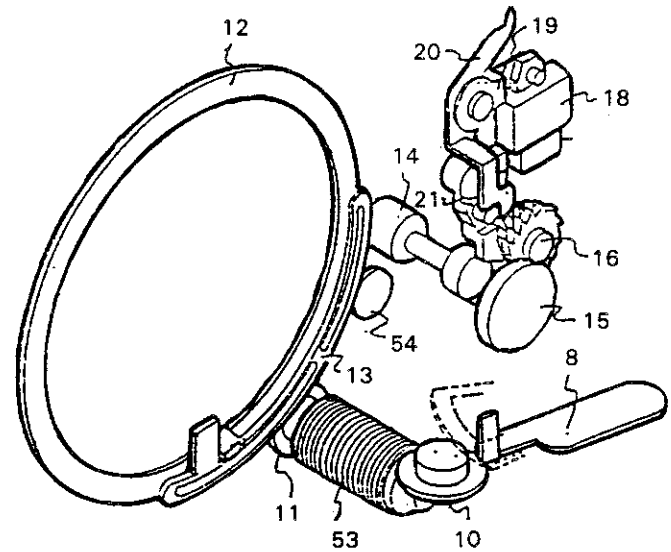


Fig. 2 Diagram of Aperture Control Mechanism

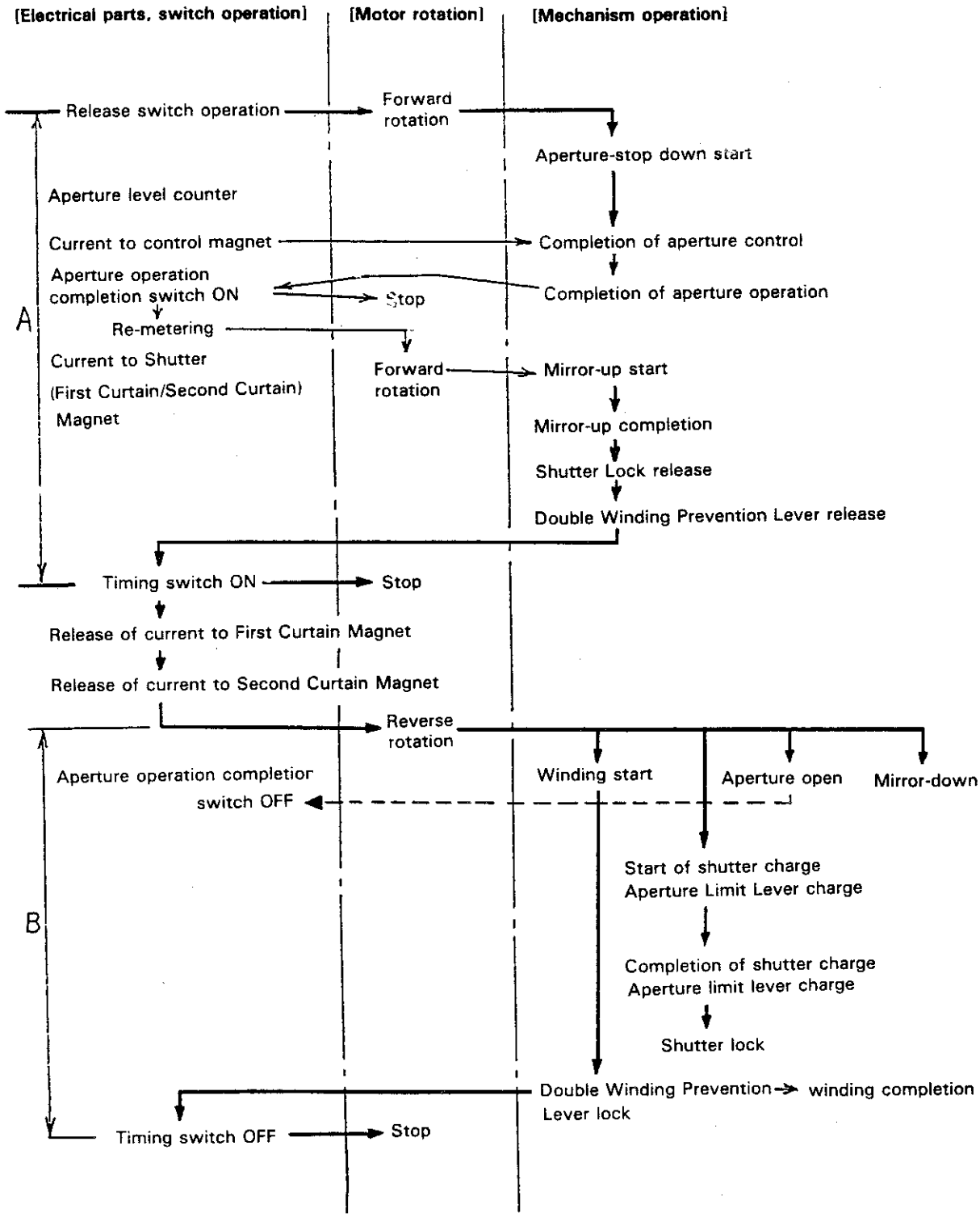


Fig. 3 Mirror-up and Winding Sequences

A-2-2. Operation Description for Each Mechanism

The mechanism operation which has the sequences shown in Fig. 3 is divided into the following two parts for the purpose of description:

(A) Mirror-up and aperture control operation

(B) Winding, shutter charge, and aperture Mg charge operation

1. Mirror-up and Aperture Control Operation

In the A section of Fig. 3 (release switch operation to timing switch ON and motor stop), the Motor rotates in the forward direction and mirror-up and aperture control is carried out. The following is a description of operation.

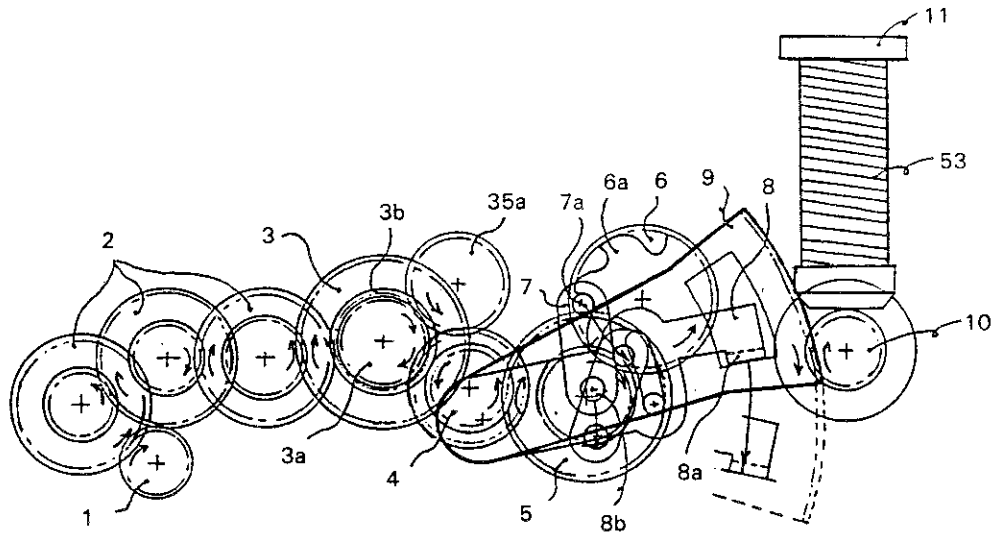


Fig. 5 Winding (Lower) Assembly During Forward Rotation (Mirror Up)

The gear lineup for the Winding (lower) Assembly is shown in Fig. 5.

Rotation (forward rotation) of Motor Pinion 1 is transferred to Clutch Gear 3 through Reduction Gear line 2.

Gear 3a rotates together with Gear 3, and Gear 3b rotates together with Gear 3 only during reverse rotation.

(Gear 3b is engaged with Double Winding Prevention Gear 34 through Gear 35. Gear 34 is stopped by Limit Lever 32 and does not rotate during forward rotation.)

The rotation of Gear 3a is transferred to Ratchet Gear 6 through Gear 4 and gear 5.

Ratchet Arm 7 is attached to the Shaft of 8b of Sector Driving Arm (8), and Ratchet Pin 7a is pressed against Ratchet 6a by the Spring. The rotation of 6 causes 6a to press against 7a and 8 to rotate in the clockwise direction.

The protruding curved section of Sector Driving Arm (8) performs the following two functions.

(i) Rotates Sector Gear (9) for aperture drive.

(ii) Pushes the M-U Slide Lever (22) for the mirror-up operation.

The operation described in ii) begins after the completion of i).

1-(i) Description of Aperture Drive (including aperture control)

As shown in Fig. 5, F Gear 11 is pressed against the lens open side by F Gear Spring 53. Rotation of Sector Gear 9 rotates F Gear 11 in reverse through B Gear 10. Fig. 6 shows the mechanism for aperture control.

Rotation of F Gear 11 rotates FC Ring 12 in the counterclockwise direction.

The protruding curved section of FC Lever 13 is sandwiched between the Lens Auto Aperture Lever and protruding section 12a of the FC Ring 12.

The force of F Gear Spring 53 pushes 12a and 13a in the clockwise direction and the Lens is moved to the open position.

When 12 rotates in the counterclockwise direction, 13 is moved in the counter-clockwise direction by the force of the Lens Auto Aperture Lever and the Spring hung on Gear 54.

Movement of 13 is transferred to Gear 16 through Gears 14 and 15.

The amount of movement by 13 is calculated by the CPU using photo current from the SPD.

When the calculated value and the programmed value, calculated using Full open aperture metering, match, current flows to Mg. 18, and armature 18a is released from 18.

There is a Spring hung on Lever 20 in the counterclockwise direction.

A unit is formed from Lever 20 and Lever 19 through use of a Spring.

Pin 19a is attached to 18a through an elongated hole and when 18a is released from 18, 19 and 20 are rotated together in the counterclockwise direction by the Spring attached to 20.

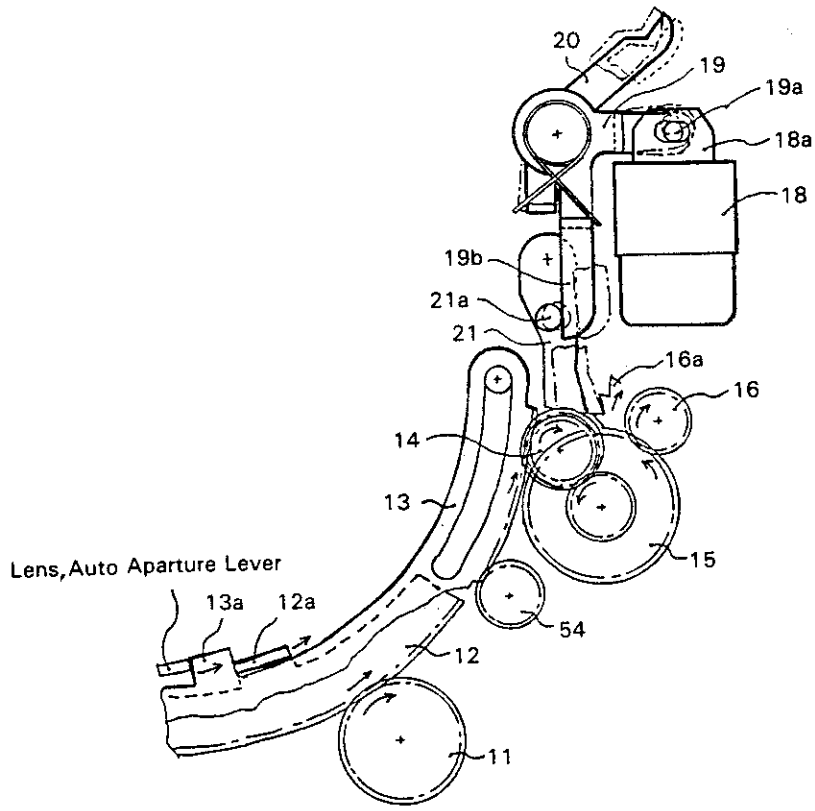


Fig. 6 Aperture Control

There is a Spring attached to FC Claw 21 in the counterclockwise direction. The 19b section comes into contact with the 21a section to maintain the position. When 19b moves away in the counterclockwise direction, 21 is also moved in the counterclockwise direction by the Spring and the tip of the Claw jumps into Ratchet 16a, stopping movement of Lever 13 and determining the lens aperture.

1-(ii) Description of Mirror-Up

The mechanism of the MU Base Plate is shown in Fig. 7.

Rotation of the Motor in the forward direction causes the protruding curved section 8a of the Sector Driving Arm to move to the left.

After completion of aperture operation, this presses against the MU Slide Plate L22 and also causes it to move to the left.

A unit is formed MU Slide Plate L22 and MU Slide Plate S 23 by a Spring. 23a pushes 24b roller section of MU Lever 24 by movement of the MU Slide Plate S 23 to the left. By that section 24 moves upward.

M Frame Roller 25 is lifted by section 24a for the mirror-up operation.

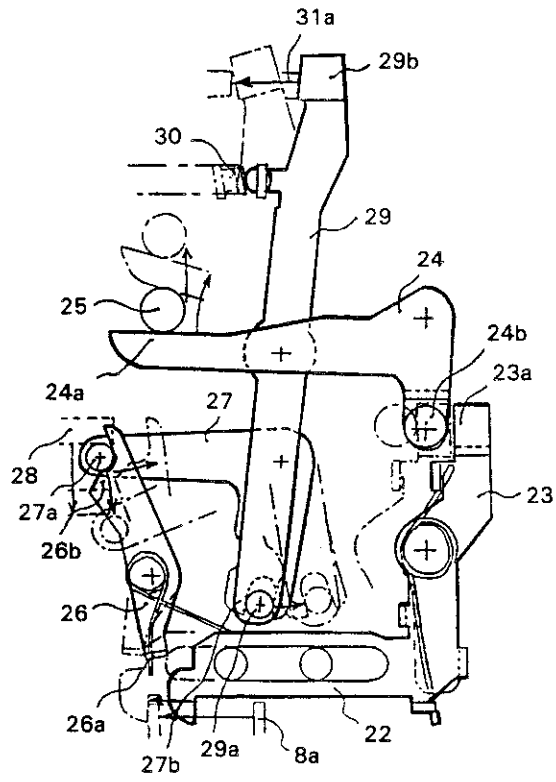


Fig. 7 MU Base Plate During Forward Rotation

The position of Shutter Charge Lever 28 (shutter unit side) is maintained by pin 27a of S Charge Lever (S) 27 and S Stopper 26. S Stopper 26 receives the spring force in the counterclockwise direction.

The protruding curved section 26a of the S Stopper pushes 26 at the final position of MU Slide Plate 22 movement to rotate it in the clockwise direction. 26b and 27a are released from each other, 27 rotates in the counterclockwise direction, 28 falls down, the charge state of the Shutter is released, and shutter movement becomes possible.

At this time, the positions of the first and second curtains are maintained by the Shutter Mg.

S Charge Lever (S) 27 and S Charge Lever (L) 29 are engaged by pin 27b and indent section 29a.

When 27 rotates in the counterclockwise direction, 29 rotates together with it in the counterclockwise direction.

The mirror-up and aperture control operations are completed, the shutter charge is released, and 29b moves up.

29b presses against 31a to rotate Charge Lever 31 in the counterclockwise direction.

Fig. 8 Winding (Upper) Assembly During Forward Rotation (Mirror-Up)

Charge Lever 31 pushes section 32b of Limit Lever 32 to also rotate 32 in the counterclockwise direction and to release 32a from Limit Cam 34a of the Double Winding Prevention Gear 34.

This switches Timing S-W 33 ON and the Motor is stopped by reception of this signal.

Following this, travel of the Shutter First Curtain, and Second Curtain is made.

The mirror-up state is maintained, as shown in Fig. 5, as the Ratchet Arm is prevented from returning by the stopper at the point where Ratchet Pin 7a exceeds the line connecting the center of Ratchet Gear 6 and Shaft 8b of Ratchet Arm 7.

(The relation between the Ratchet Gear and Ratchet Arm is the same as for CONTAX 137-MD Mirror-up Lens Drive. Refer to this section for details.)

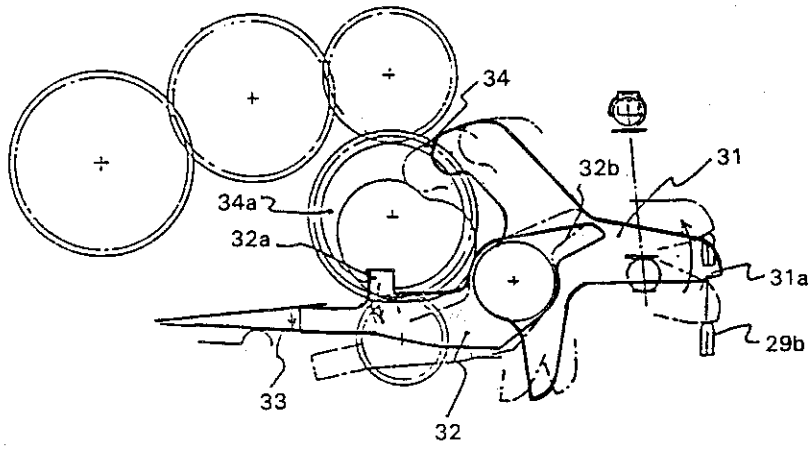


Fig. 8 shows the mechanism of the Winding (upper) Assembly.

2. Description of Winding, Shutter Charge, Aperture Mg Charge Operation

After shutter movement, the motor rotation is reversed in Section B of Fig. 3 (reverse rotation of motor to timing switch ON and motor stop), winding, shutter charge, and aperture Mg charge are carried out, and at the same time, mirror-down and aperture opening are performed.

The following is a description of this operation.

The gear lineup for the winding (lower) assembly is shown inFig. 9.

Rotation of motor pinion 1 is transferred to rachet gear 6 through reduction gear 1, clutch gear 3, idle gear 4, and idle gear 5.

As was explained in 2-(A), the rachet arm is maintained at the point where rachet pin 7 goes past the line connecting shaft 8b of the rachet arm and the center of 6. 6 is rotated and when 7a goes past the line connecting the center of 6 and 8b, the force of F gear spring 53 returns sector gear 9 and sector drive arm 8 to the state which existed prior to mirror-up.

This opens the aperture of the lens and brings the mirror down.

When clutch gear 3 rotates in the direction indicated by the arrow, the rotation of 3 is transferred to W shaft gear 35a through 3b.

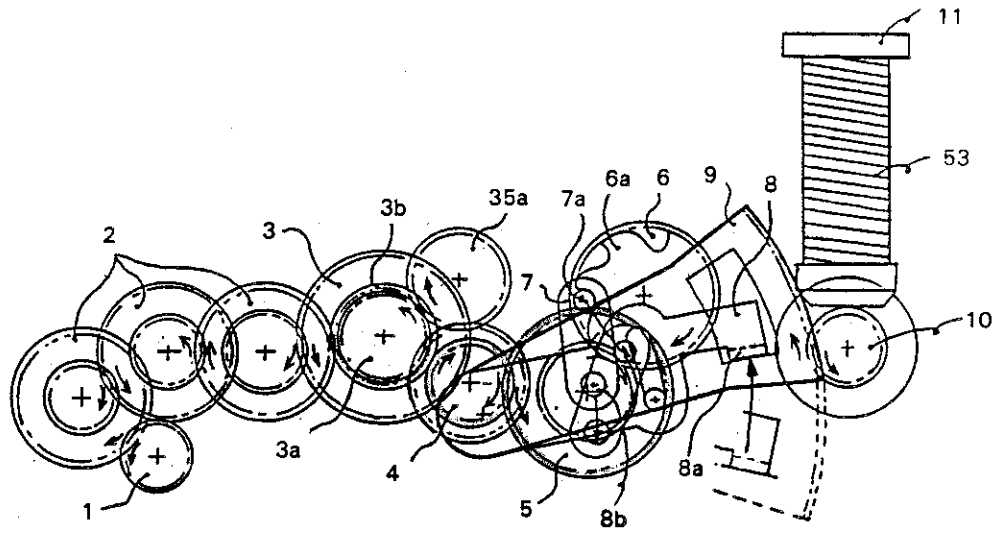


Fig. 9 Winding (Lower) Assembly During Reverse Rotation (Winding)

The mechanism of the winding (upper) assembly is shown in Fig. 10.

The rotation of W shaft gear 35b is transferred to spool gear 38 to wind the film through double winding prevention gear 34, sprocket gear 36, and spool idle gear 37.

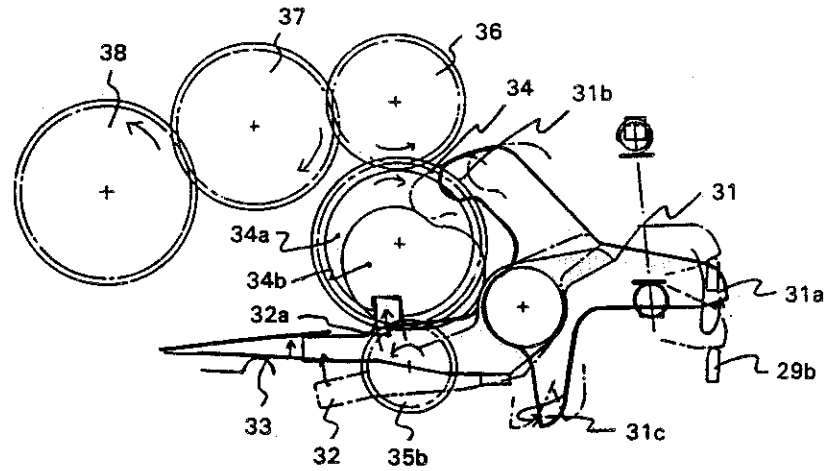


Fig. 10 Winding (Upper) Assembly During Reverse Rotation (Winding)

When 27a reaches the position indicated by the solid line, S stopper 26 is moved in the counterclockwise direction by the spring to maintain the position of 27a.

Fig. 12 shows the mechanism for aperture control.

At the beginning of winding, FC ring 12 and FC lever 13 are returned to the lens open popsition by the force of the F gear spring.

Change lever 31 is moved in a J-shaped by the double winding prevention cam.

At this time, 31c pushes Mg charge lever 20 and 20 is rotated in the clockwise direction.

At the same time, iron contact lever 19 is rotated in the clockwise direction, 19a pushes 21a of FC claw 21 and the FC claw is released from the rachet.

Also, movable contact 18a is attracted to Mg 18.

The charge lever 31 performs the charge operation by double winding prevention cam 34b which forms a unit with double wind prevention gear 34.

In addition, the protruding section 32a of limit lever 32 comes into contact with the circumference of limit cam 39a, double winding prevention gear 34 rotates, protruding section 34a engages 32a, and the timing SW is turned OFF to stop the motor.

The mechanism of the MU base plate is shown in Fig. 11.

After shutter movement and prior to winding, the mechanism is in the state indicated by the dotted chain line. At the beginning of winding, the protruding curved section of the sector drive arm 8a moves to the right.

Charge lever 31 is moved in a J-shaped pattern by the double wind prevention cam.

At that time, 31a pushes 29b to move the S charge lever (L) 29 in the clockwise direction.

At the same time, S charge lever (S) 27 is rotated in the clockwise direction and 27a pushes shutter charge lever 28 up.

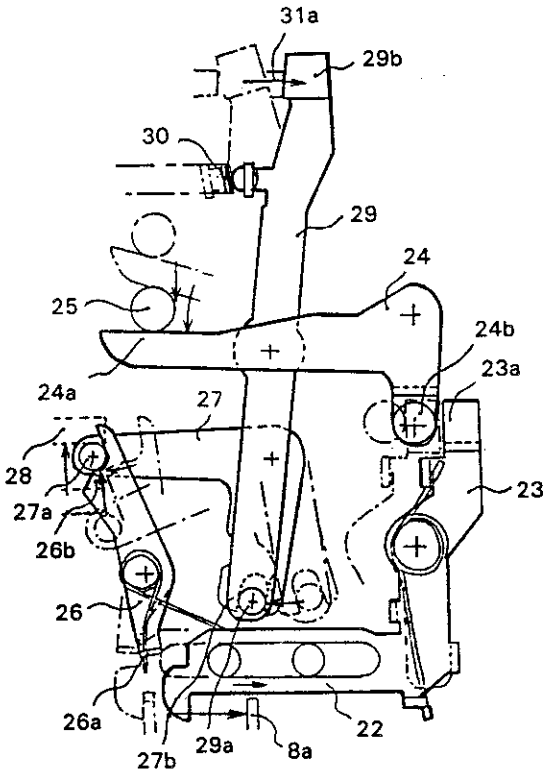


Fig. 11 MU Base Plate During Reverse

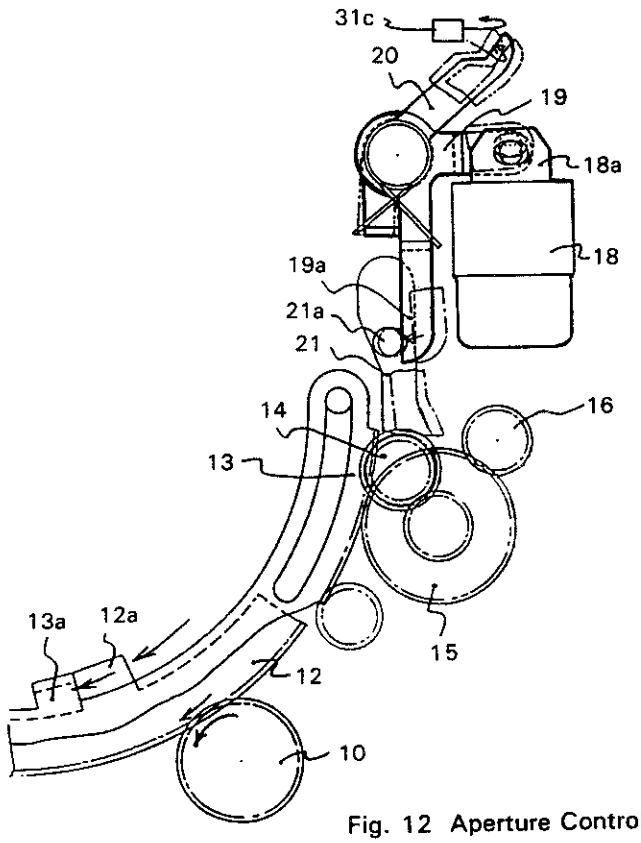


Fig. 12 Aperture Control (Charge)

B. DISASSEMBLY PROCEDURES

B-1. REMOVAL OF EXTERNAL PARTS

B-1-1. Removal of Bottom Cover

Remove the parts in the numerical order.

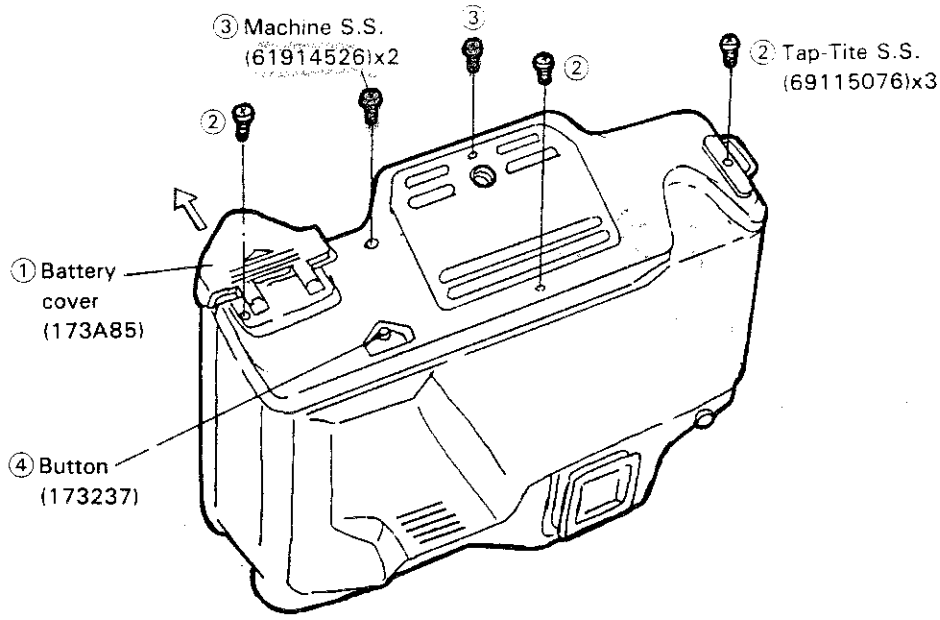


Fig. 13

B-1-2. Removal of Front Cover Ass'y

Remove the parts in the numerical order

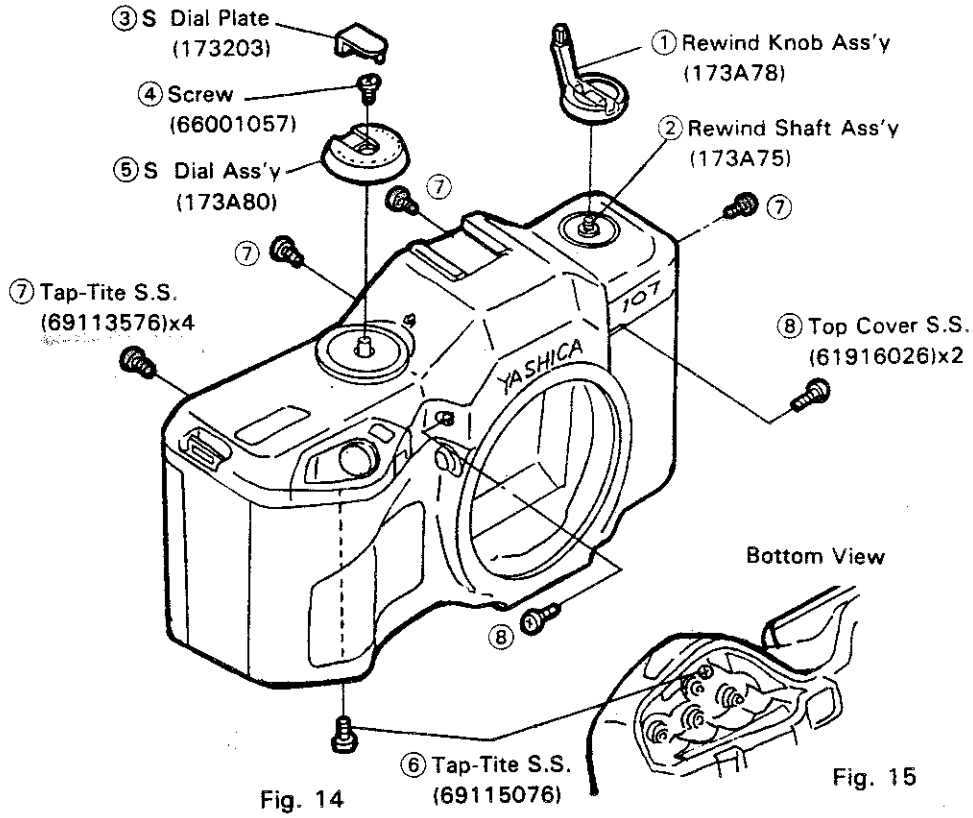


Fig. 14

Fig. 15

B-1-3. Removal of Front Cover Ass'y

Remove the parts in the numerical order

1) Remove the Tap-Tite S.S. (69114576) and Cartridge Holder Spring (168106).

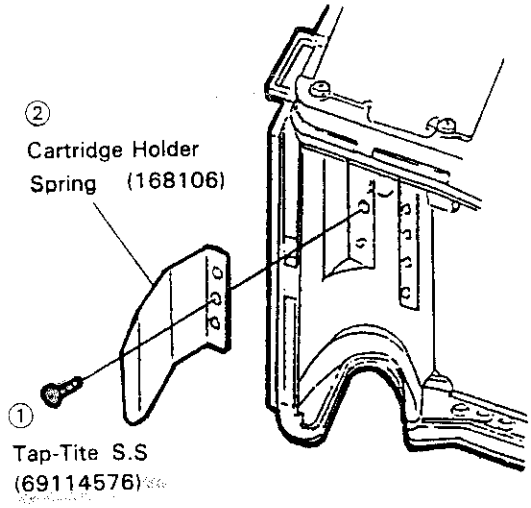


Fig. 16

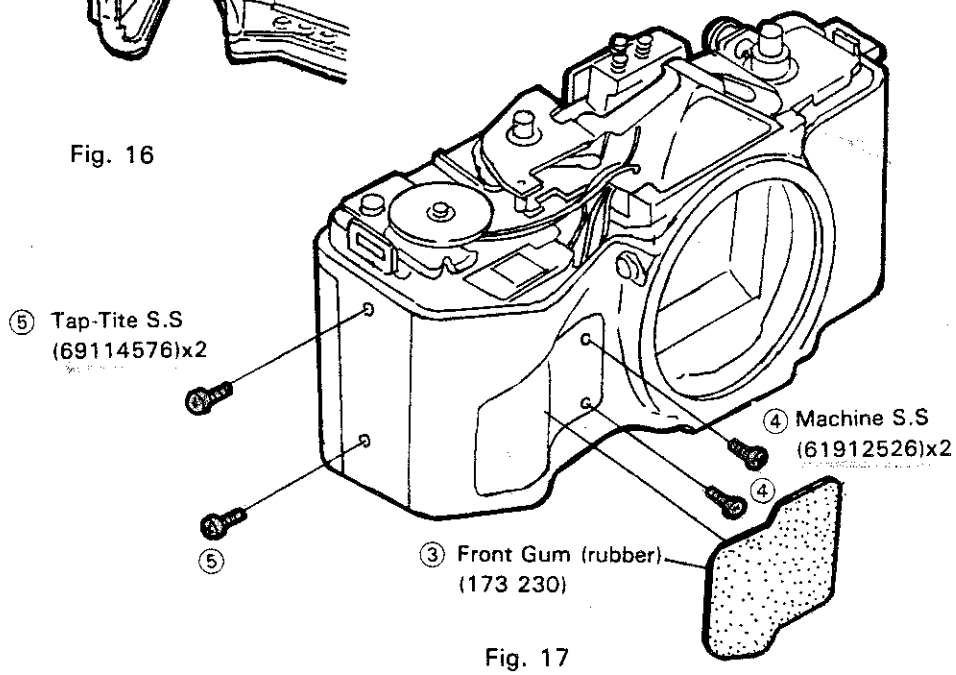


Fig. 17

B-2. REMOVAL OF TRIPOD SOCKET HOLDER ASS'Y

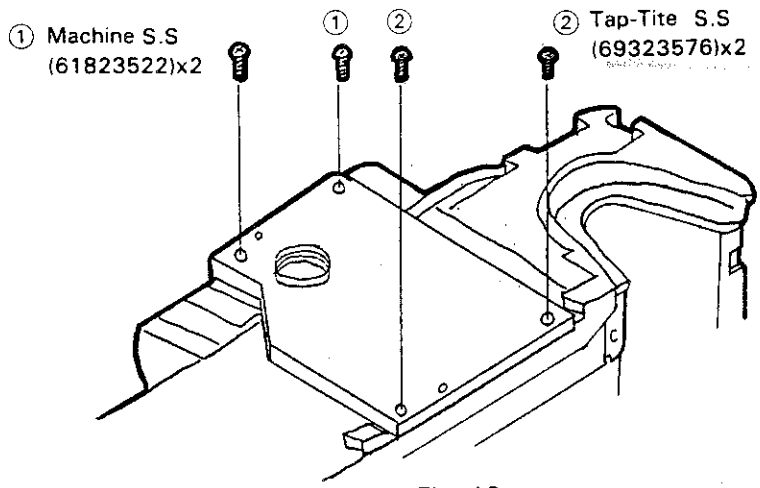


Fig. 18

B-3. REMOVAL OF GEAR ASS'Y

Remove the parts shown in Fig. 7 in the numerical order.

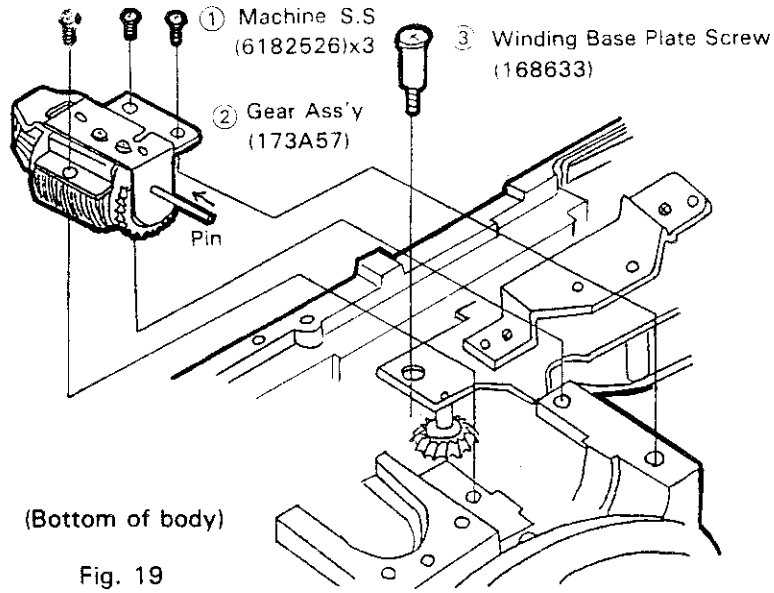


Fig. 19

B-4. REMOVAL OF SHUTTER DIAL MECHANISM

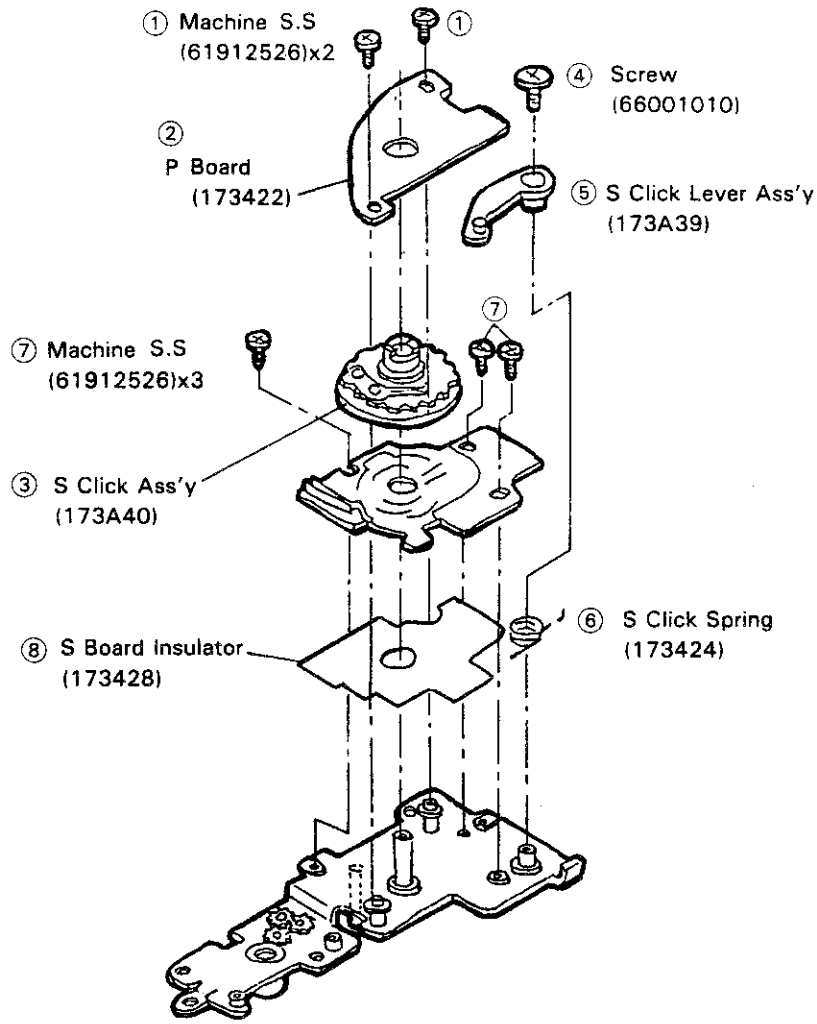


Fig. 20

B-5. REMOVAL OF RELEASE SWITCH ASS'Y

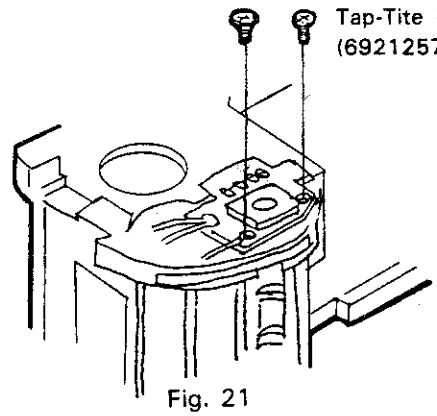


Fig. 21

B-6. REMOVAL OF FPC-1 ASS'Y

(1) Remove the parts in the order shown in the diagram below.

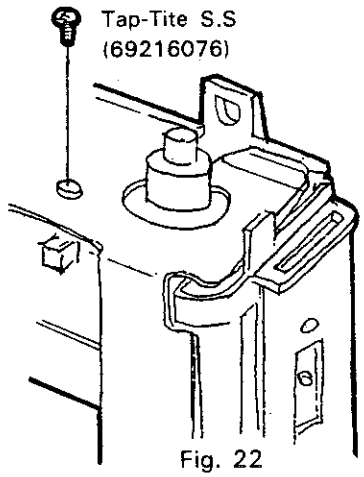


Fig. 22

(2) Removal of DC/DC Converter.

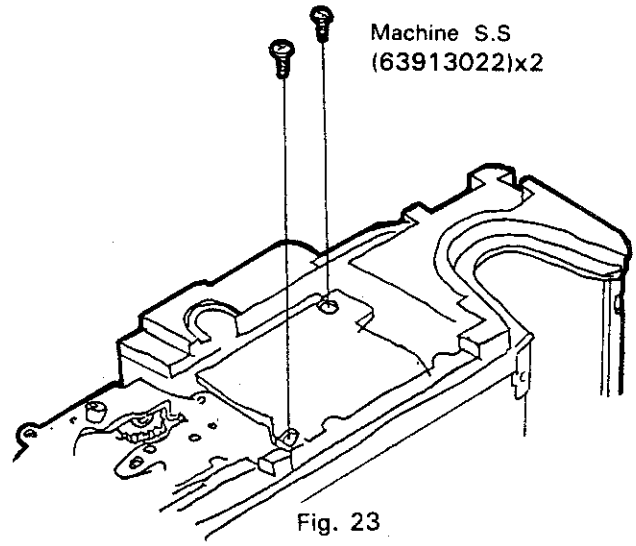


Fig. 23

(3) Remove the parts shown in Fig. 24 in the numerical order.

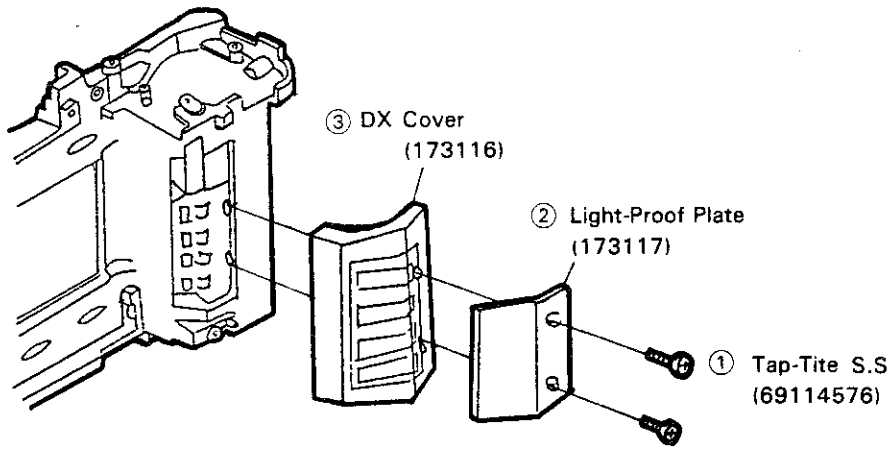


Fig. 24

(4) Remove the parts shown in Fig. 25 in the numerical order.

(Note)

Use care when removing the FPC-E of the section A as it in the center of the FPC-F and Body, and is mounted on guide posts in two places.

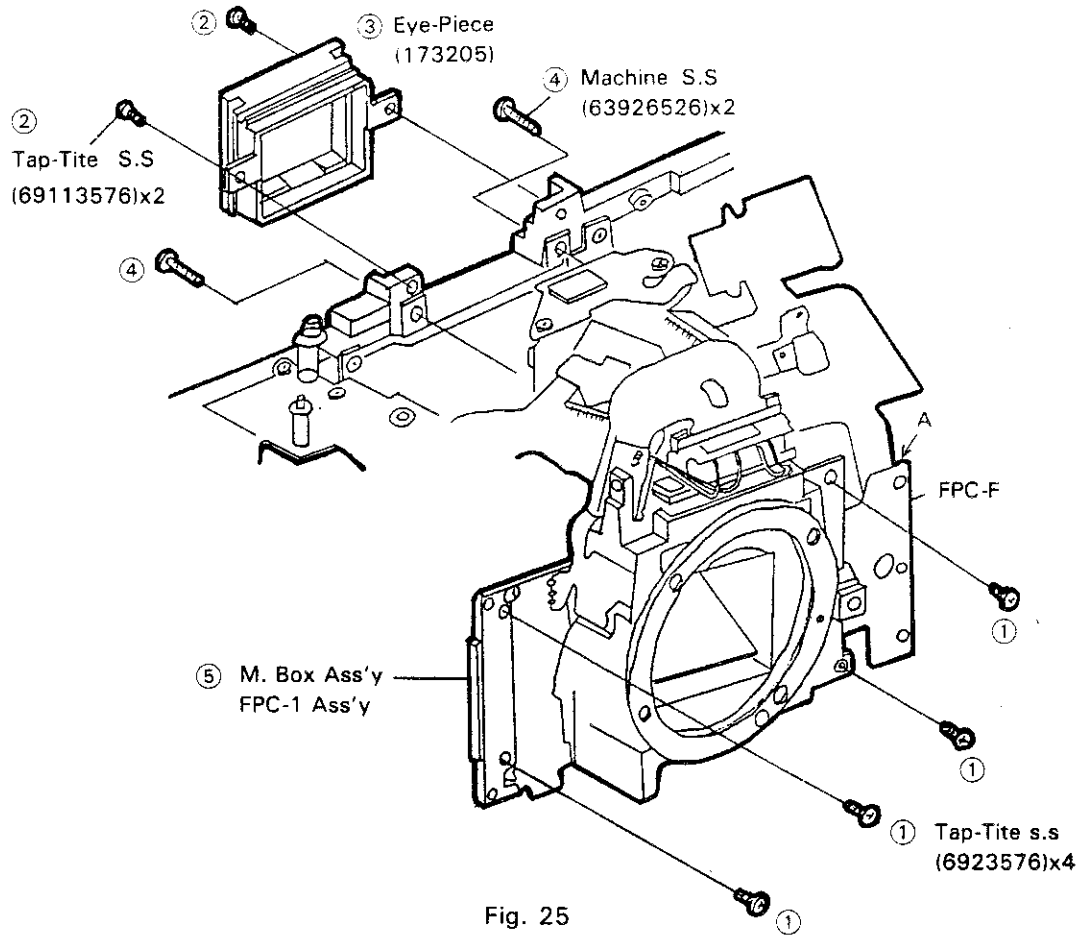


Fig. 25

B-7. REMOVAL OF REWIND ASS'Y

(1) Removal of Rewind Shaft Holder Ass'y

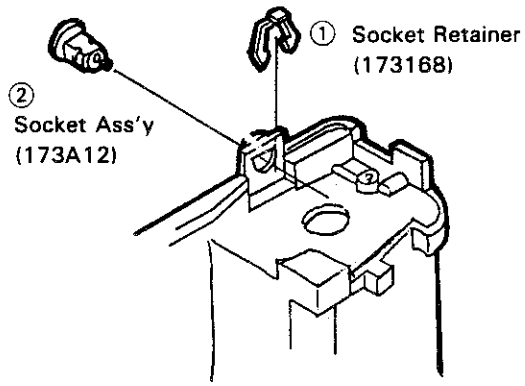


Fig. 26

(2) Remove the parts shown in Fig. 27 in the numerical order

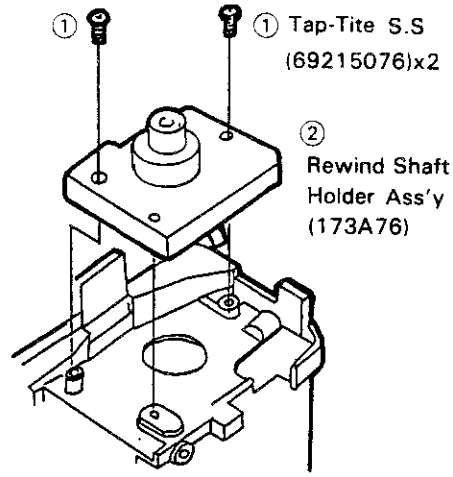


Fig. 27

B-8. REMOVAL OF WINDING BASE PLATE (UB) ASS'Y

Remove the parts shown in Fig. 28 in the numerical order.

Move the Limit Lever in the direction indicated by the arrow as shown in the diagram, and rotate the Screw (66001042) while holding the -W Shaft Gear with tweezers or a screwdriver.

(Note) Be sure not to bend the Timing Contact (L) while removing the Limit Lever.

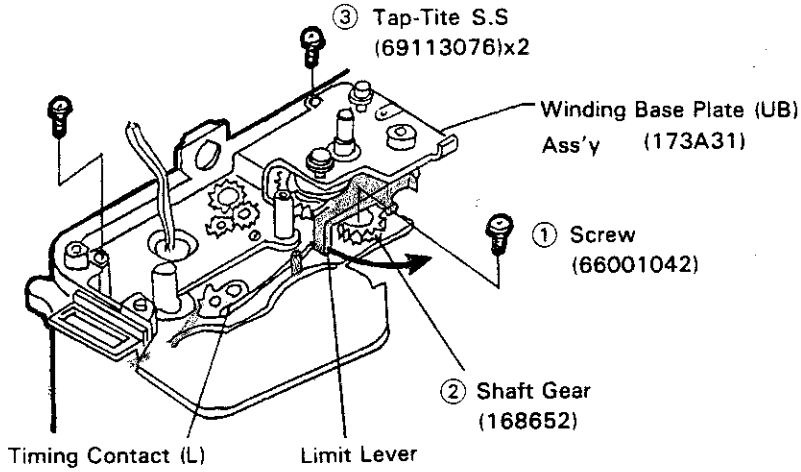


Fig. 28

B-9. REMOVAL OF SPROCKET

Remove the parts shown in Fig. 29 in the numerical order.

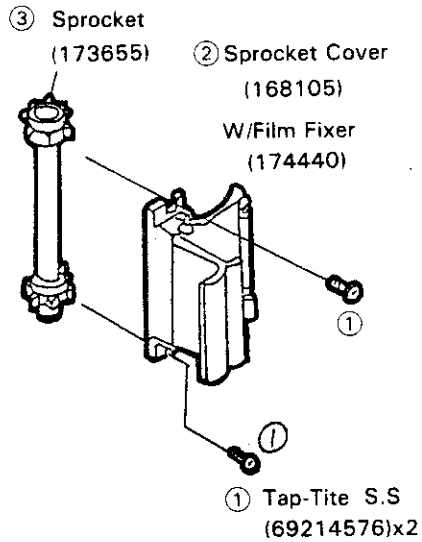


Fig. 29

B-10. REMOVAL OF WINDING BASE PLATE (LB) ASS'Y

Remove the parts shown in Fig. 30 in the numerical order.

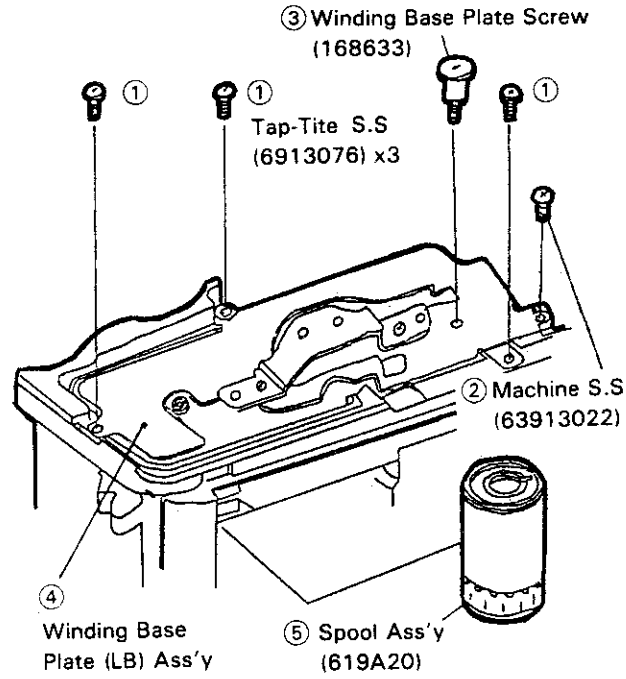


Fig. 30

B-11. REMOVAL OF SHUTTER ASS'Y

Remove the parts shown in Fig. 31 in the numerical order.

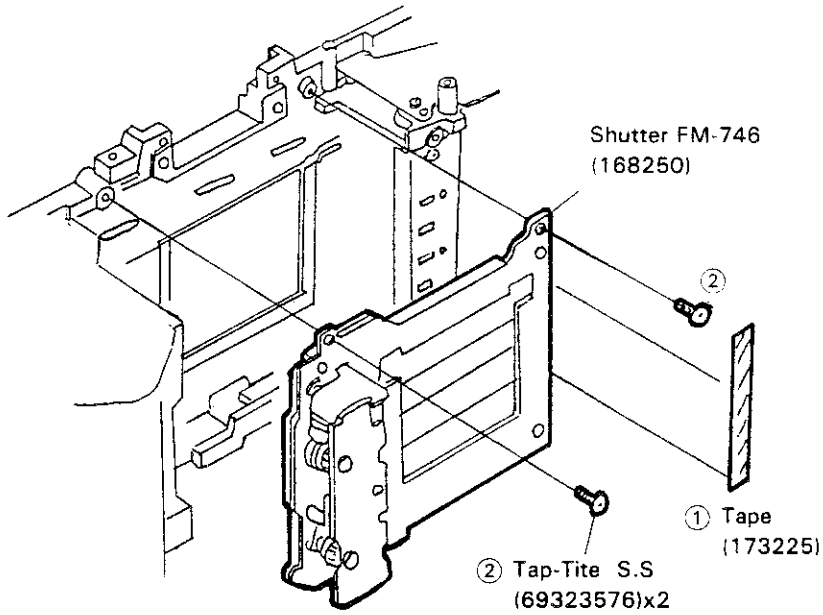


Fig. 31

* After removing the Shutter, be sure to attach the IC Tape (black) as shown in Fig. 32.

(1) Brown Lead Wire (X Contact)
(2) Green Lead Wire (Rear Curtain Mg)
(3) Dark Blue Lead Wire (Mg (f))
(4) Black Lead Wire (GND)
(5) Blue Lead Wire (Front Curtain Mg)

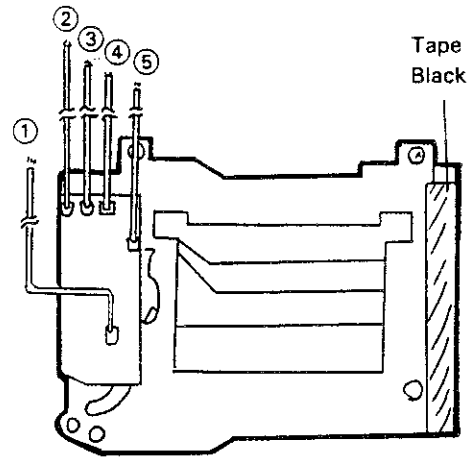


Fig. 32

B-12. REMOVAL OF BACK COVER LOCK MECHANISM

(1) Remove the parts shown in Fig. 33 in the numerical order.

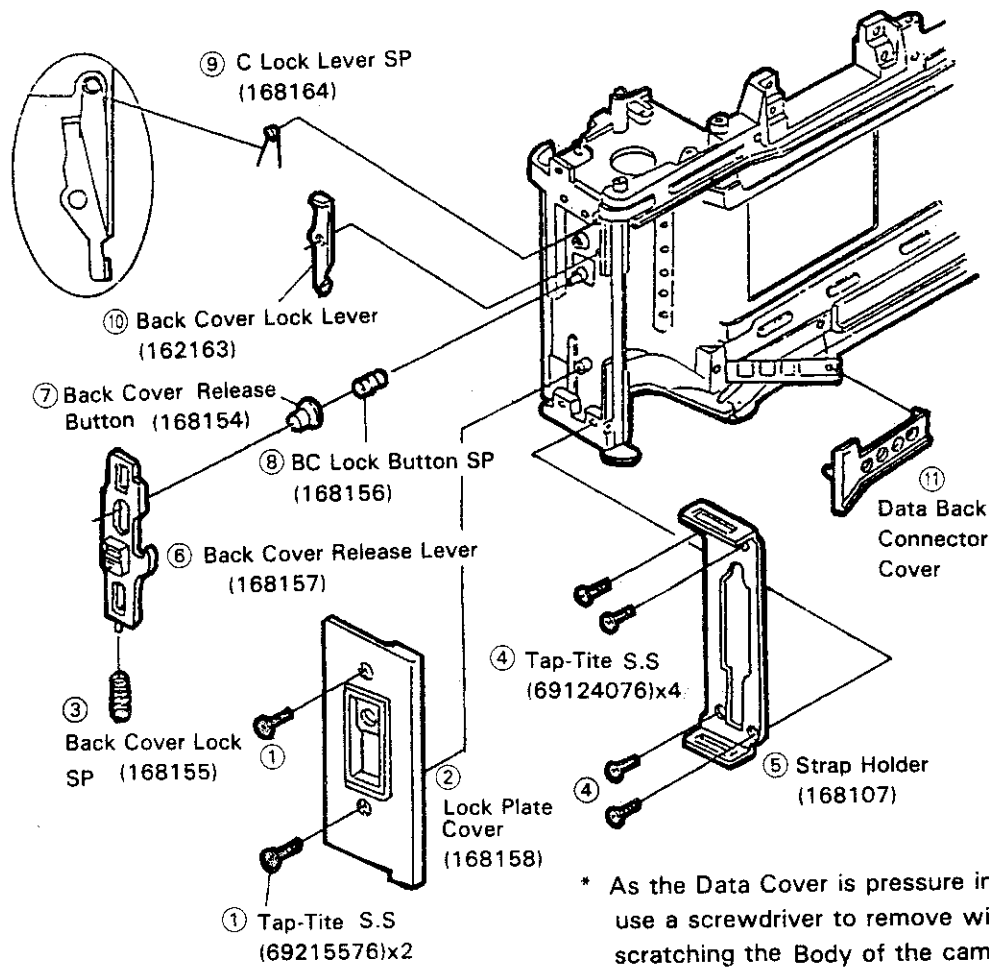

⑨ C Lock Lever SP (168164)
⑩ Back Cover Lock Lever (162163)
⑦ Back Cover Release Button (168154)
⑧ BC Lock Button SP (168156)
⑥ Back Cover Release Lever (168157)
③ Back Cover Lock SP (168155)
① Tap-Tite S.S (69215576)x2
② Lock Plate Cover (168158)
④ Tap-Tite S.S (69124076)x4
⑤ Strap Holder (168107)
⑪ Data Back Connector Cover
* As the Data Cover is pressure inserted, use a screwdriver to remove without scratching the Body of the camera.

Fig. 33

(2) Removal of Back Cover Hinge Plate.

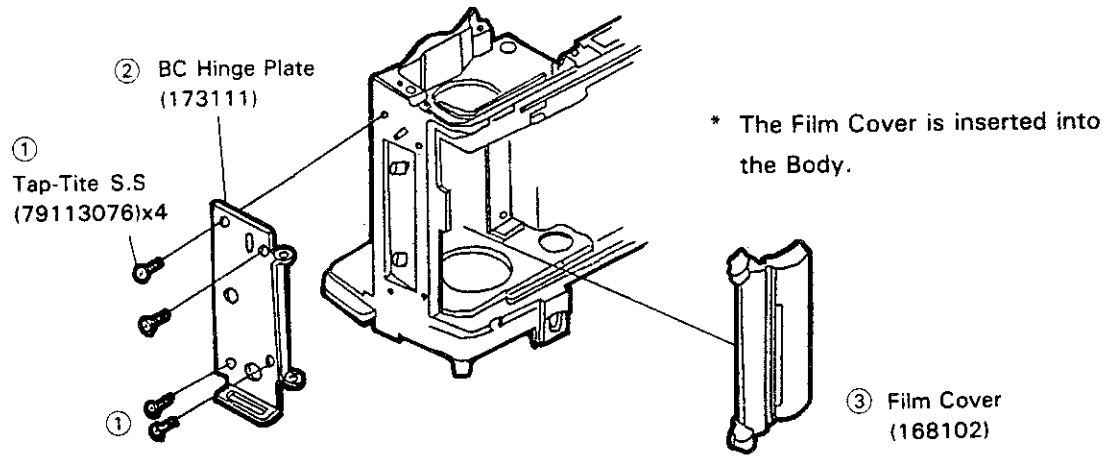


Fig. 34

B-13. REMOVAL OF FINDER PARTS

Remove the Finder Parts shown in Fig. 35 .

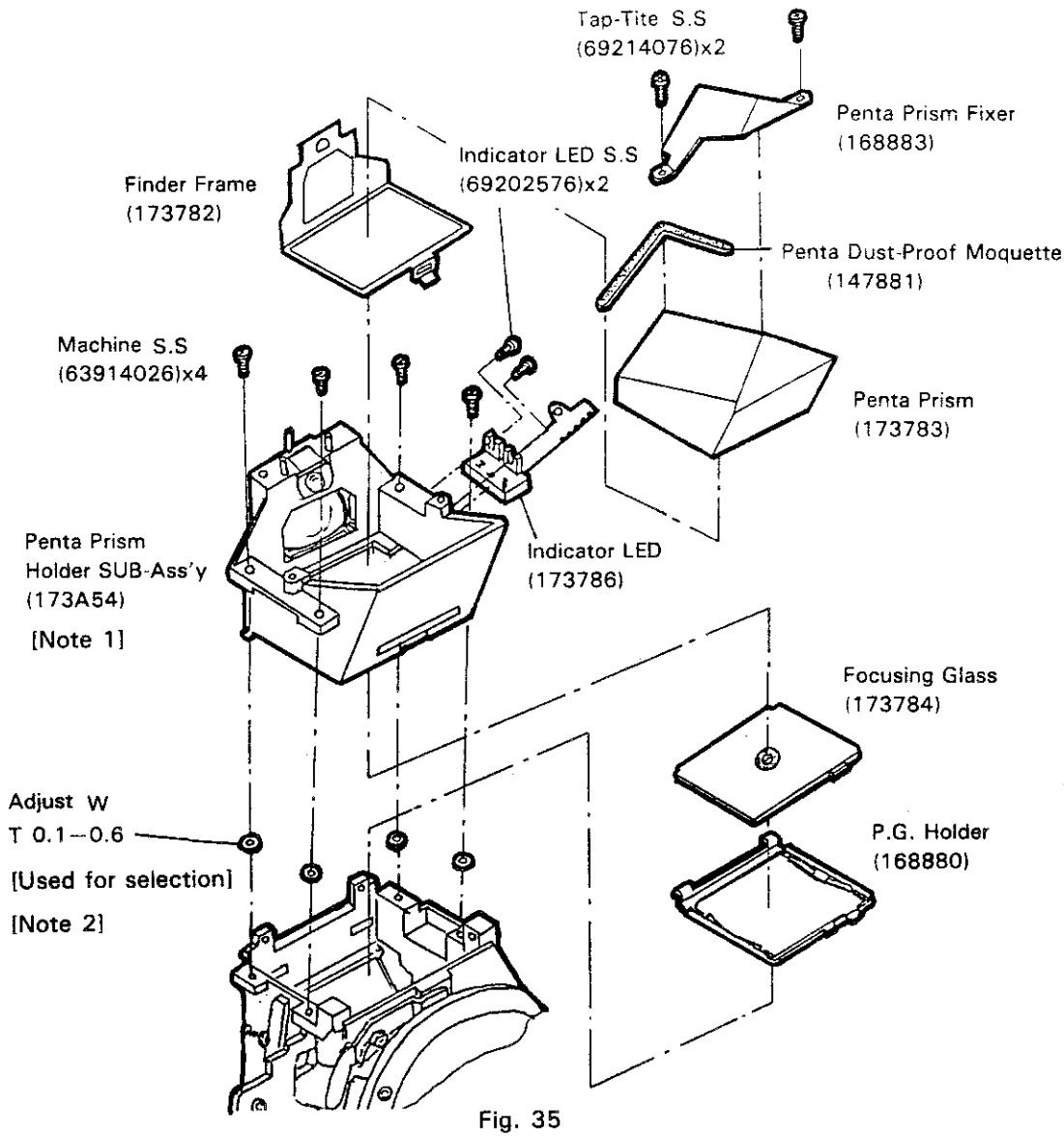


Fig. 35

Note 1. The following parts are attached to the Penta Prism Holder Sub-Ass'y.

i) Eye-Piece Lens (173788)
Attached by Cemedyne 551A

ii) Light-Gathering Lens (142819)
Attached by MEK and Cemedine 551A

iii) Eye-Piece Aperture (168877)
Inserted by pressure

iv) P.G. Hinge Shaft (168881)
Inserted by pressure

Note 2 The code for the Penta Prism Holder Adjusting Washers ar. as follows.

60311812	T 0.1
60321810	T 0.2
60331816	T 0.3
60341812	T 0.4
60351810	T 0.5
60361816	T 0.6

B-14. DISASSEMBLY OF MIRROR BOX ASS'Y

[Precaution]

Take care the following precautions when disassembling the mirror box.

Locations not equipped with the mirror 45° adjustment jig must not disassembly (remove) the Mirror Frame Sub-Ass'y, MU Base Plate Sub-Ass'y, 45° Base Plate Ass'y, or M Adjust Plate Ass'y.

Remove the parts shown in Fig. 36 in the numerical order.

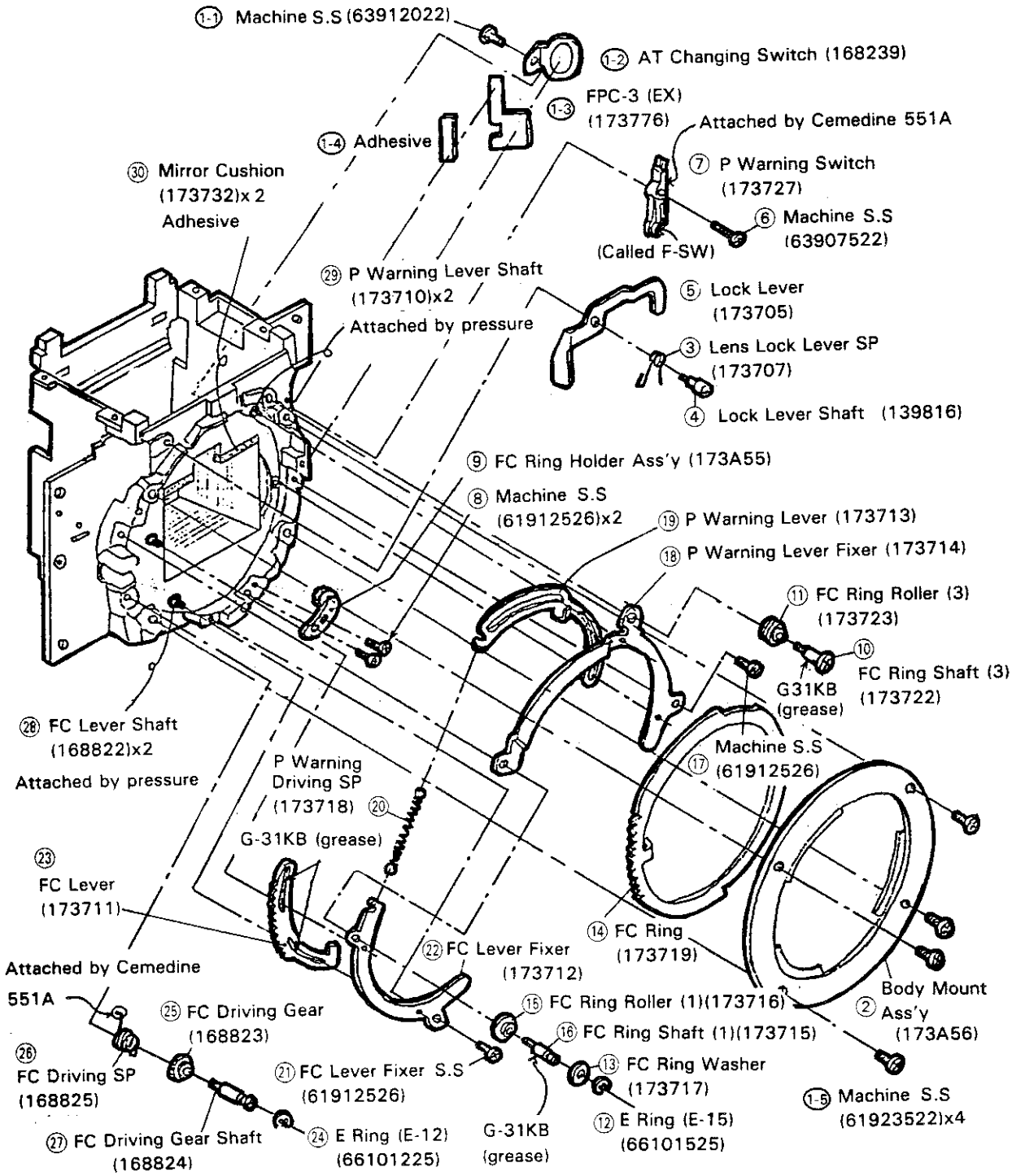

(1-1) Machine S.S (63912022)
(1-2) AT Changing Switch (168239)
(1-3) FPC-3 (EX) (173776)
(1-4) Adhesive
Attached by Cemedine 551A
(7) P Warning Switch (173727)
(6) Machine S.S (63907522)
(Called F-SW)
(30) Mirror Cushion (173732)x 2
Adhesive
(29) P Warning Lever Shaft (173710)x2
Attached by pressure
(5) Lock Lever (173705)
(3) Lens Lock Lever SP (173707)
(4) Lock Lever Shaft (139816)
(9) FC Ring Holder Ass'y (173A55)
(8) Machine S.S (61912526)x2
(19) P Warning Lever (173713)
(18) P Warning Lever Fixer (173714)
(11) FC Ring Roller (3) (173723)
(10) FC Ring Shaft (3) (173722)
G31KB (grease)
(28) FC Lever Shaft (168822)x2
Attached by pressure
P Warning Driving SP (173718) (20)
G-31KB (grease)
(17) Machine S.S (61912526)
(23) FC Lever (173711)
Attached by Cemedine 551A
(14) FC Ring (173719)
(22) FC Lever Fixer (173712)
Body Mount Ass'y (173A56) (2)
(25) FC Driving Gear (168823)
(15) FC Ring Roller (1)(173716)
(16) FC Ring Shaft (1)(173715)
(26) FC Driving SP (168825)
(21) FC Lever Fixer S.S (61912526)
(13) FC Ring Washer (173717)
(1-5) Machine S.S (61923522)x4
(27) FC Driving Gear Shaft (168824)
(24) E Ring (E-12) (66101225)
G-31KB (grease)
(12) E Ring (E-15) (66101525)

Fig. 36

If disassembly was performed for unavoidable reasons, be sure to check the following.

i) Focus Adjustment

Make sure that the periphery is also in focus when the center of the Finder is in focus.

ii) Parallax Inspection

Inspect and confirm by a shooting test that the parallax is within the required specifications.

(Specifications)

Vertical direction	Within 0.5mm
Horizontal direction	Within 0.7mm

B-15. DISASSEMBLY OF WINDING BASE PLATE (U) ASS'Y

(1) As shown in Fig. 37, place the Winding Base Plate (U) Ass'y on top of a Film Case and disassembly.

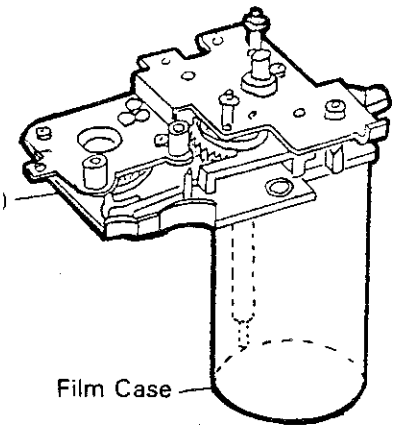


Fig. 37

(2) Remove the parts shown in Fig. 38 in the numerical order.

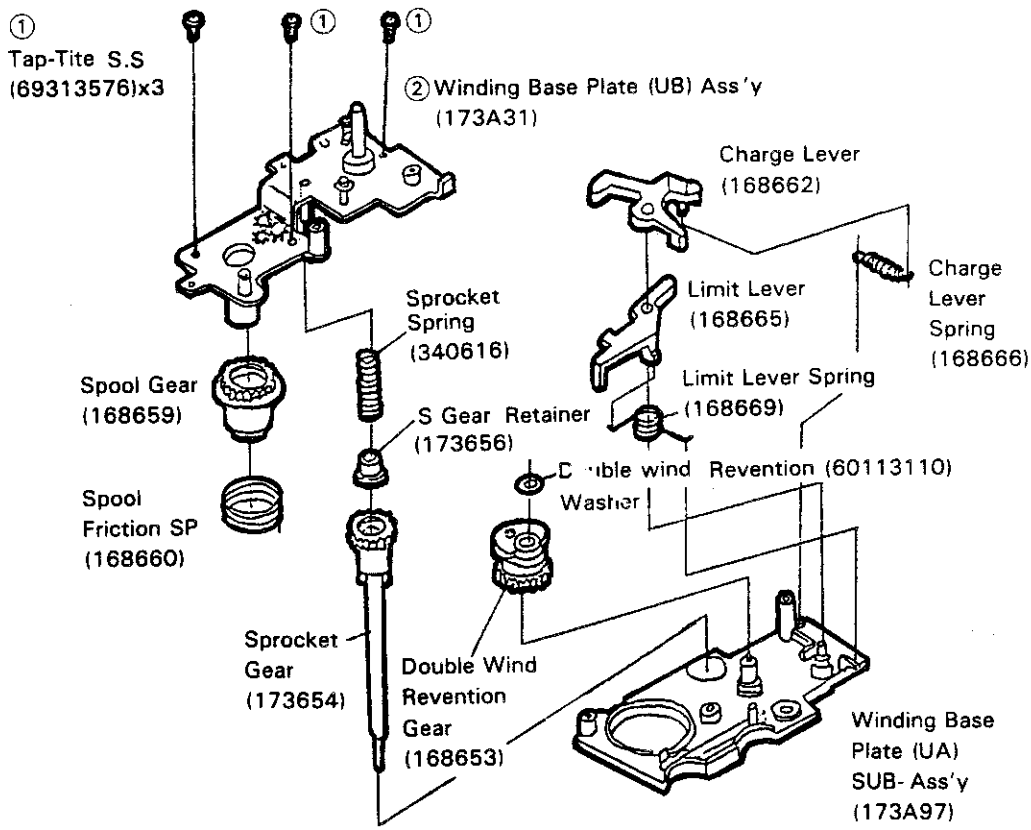


Fig. 38

B-16. DISASSEMBLY OF WINDING BASE PLATE (L) ASS'Y

(1) Remove the parts shown in Fig. 39 in the numerical order

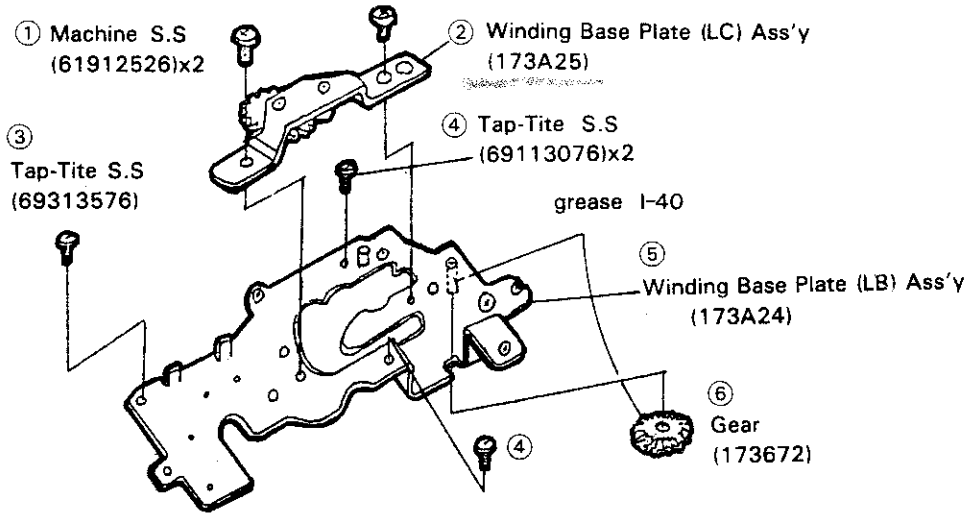


Fig. 39

(2) Remove the parts as shown in Fig. 40.

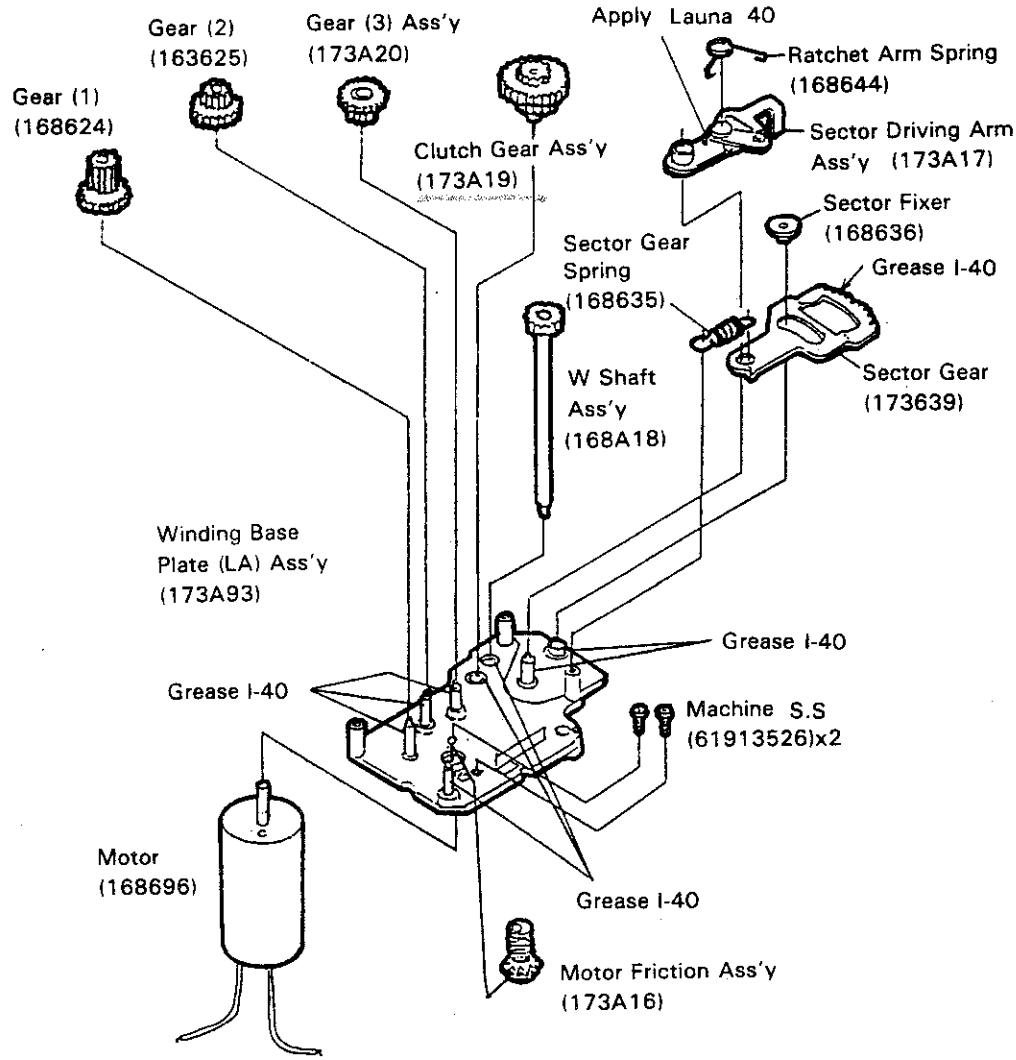
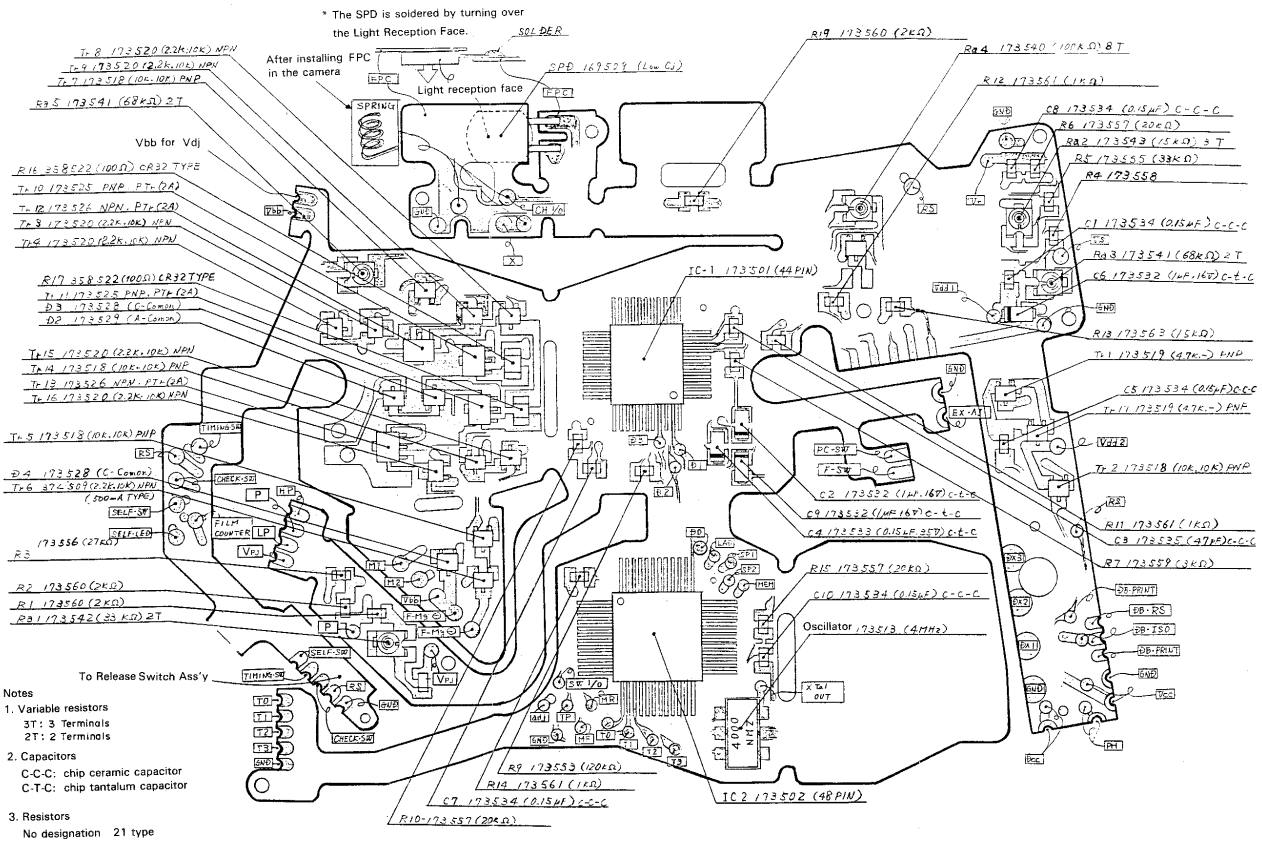
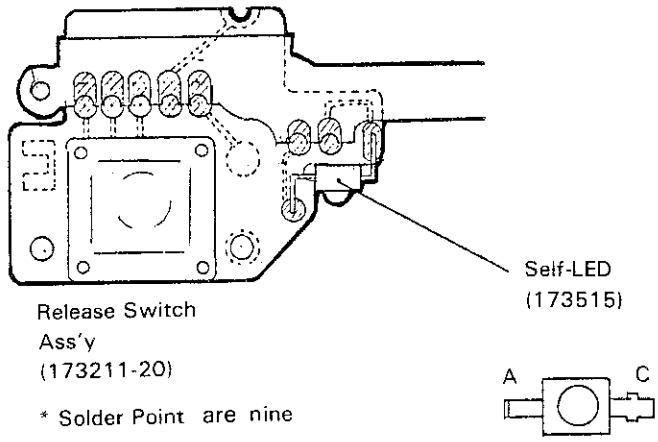


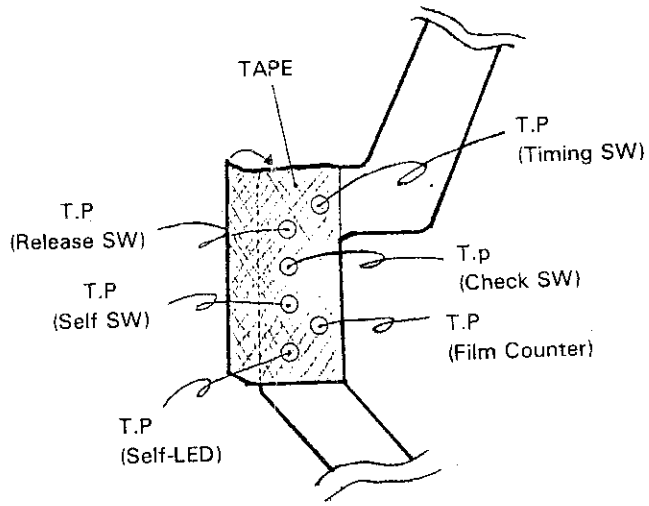
Fig. 40

MAIN-FPC ELECTRIC PARTS LOCATION DIAGRAM



MAIN-FPC PARTS LOCATION DIAGRAM



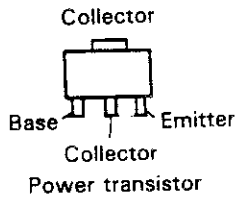


ELECTRIC PARTS ACCORDING TO FUNCTIONS

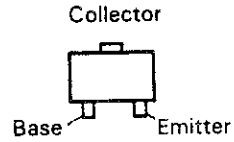
Symbol	Name	Specification	Function
IC 1			Dedicated IC
2	CPU		Main C.P.U
			Power Hold Control
Tr 1	PNP	4.7K	For PH control (V_{DD}: IC-1)
2	PNP	10K, 10K	For Data-Back print
3	NPN	2.2K, 10K	For M2 (rear curtain) drive
4	NPN	2.2K, 10K	For M1 (front curtain) drive
5	PNP	10K, 10K	For F-Mg control
6	NPN	(IC: 500mA)	For F-Mg drive
7	PNP	10K, 10K	For motor control (winding)
8	NPN	2.2K, 10K	For motor control (winding)
9	NPN	2.2K, 10K	For motor control (for prohibition when braking)
10	PNP	2A (power)	For motor drive (F. stop Down, mirror up)
11	PNP	2A (power)	For motor drive (winding)
12	NPN	2A (power)	For motor drive (winding)
13	NPN	2A (power)	For motor drive (F. stop Down, mirror up)
14	PNP	10K, 10K	For motor control (F. stop Down, mirror up)
15	NPN	2.2K, 10K	For motor control (focusing, mirror up)
16	NPN	2.2K, 10K	For motor control (for prohibition when braking)
17	PNP	4.7K	For power hold control (V_{DD}: IC-1)
D1	Diode	1.5A	For reverse-current protection
2	Diode	Anode common	For motor surge absorption
3	Diode	Cathode common	For motor surge absorption
4	Diode		For F-Mg surge absorption
SPD	Silicon photo-diode		For photo metering
LED 1	LED Ass'y	Red•Green•Green	For viewfinder indication
2		Red	For selftimer indication
DC/DC convertor			For voltage stabilization
200			For starting Power Hold
100K			For limiting current at IC Dcc pin
D			For preventing reverse-current
C1	Ceramic capacitor	0.15μ	For stabilizing Vs
2	Tantalum capacitor	1μ	or storing F. stop Down voltage
3	Ceramic capacitor	47P	For metering amp, phase compensation
4	Tantalum capacitor	0.15μ	For A/D conversion, dual slope
5	Tantalum capacitor	0.15μ	For V_{CC} stabilization
6	Tantalum capacitor	1μ	For V_{DD1} stabilization
7	Ceramic capacitor	0.15μ	For IC1 reset
8	Ceramic capacitor	0.15μ	Ceramic capacitor for Vr stabilization
9	Tantalum capacitor	1μ	For V_{DD2} stabilization
10	Ceramic capacitor	0.15μ	For IC2 reset

Symbol	Name	Specification	Function
Ra 1	Pin 2	33K	For VDJ adjustment (program voltage)
2	Pin 3	15K	For VJ1 adjustment (exposure)
3	Pin 2	68K	For VJr adjustment (reference voltage)
4	Pin 3	100K	For offset adjustment
5	Pin 2	68K	For VBJ adjustment (battery check)
R1		2K	For L_P voltage
2		2K	For P voltage
3		27K	For H_P voltage
4		10K	For V_{J1} (Vs side)
5		10K	For V_{J1} (Vr side)
6		20K	For V_{JR} (Vr side)
7		3K	For V_{MEMO} terminal, current limiting
9		120K	CHS terminal pull-down
10		20K	For IC1 reset
11		1K	For ϟ LED current limiting
12		1K	For P LED current limiting
13		1.5K	For M LED current limiting
14		1K	For selftimer LED current limiting
15		20K	For IC2 reset
16		100K	For motor drive current limiting (focusing mirror up)
17		100K	For motor drive current limiting (winding)
19		2K	For CHS terminal current limiting

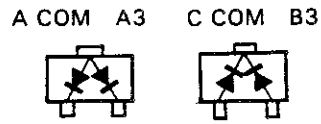
GUIDE TO INSTALLED PARTS



Power transistor

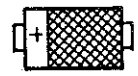


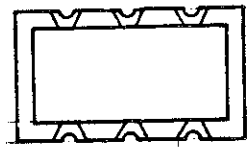
Digital transistor

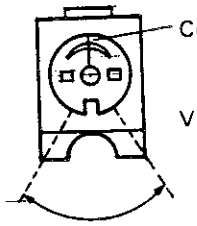


Double diode

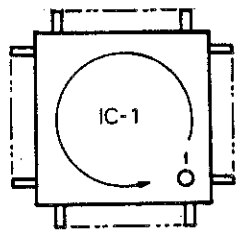
Resistor Capacitor
* No polarity

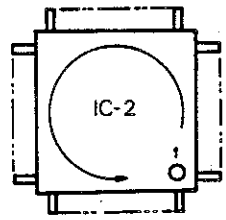

Tantalum capacitor
* Has polarity


* No polarity



Variable resistor
* Center not within this range





C. REASSEMBLY PROCEDURES AND ADJUSTMENT

C-1. REASSEMBLY OF MIRROR BOX ASS'Y

C-1-1. Reassembly of Parts

Reassembly by the reverse procedure shown in Fig. 23.

[Precautions]

1) The FC Driving Spring is set at 270° (over side) and is mounted in the direction in which the FC Lever does not rotate.
2) Adjust the set screw for the FC Ring Holder Ass'y so that there is less than 0.2 play in the FC Ring.
3) Note that there is a washer for adjusting levelness under the body mount. Be sure to insert into the same place when reassembling.
4) Do not apply too much grease to the long groove of the FC Ring. Wipe after applying G-31KB grease.
5) The P. Warning Switch has both upper and lower contacts.
   Check that ON/OFF is properly performed by operation of the FC Ring and P. Warning Lever.

C-1-2. Reassembly of FC Base Plate Ass'y

Rotate the FC Gear 1-S (168851) in the direction in which the FC-SP (168852) is tightened, gently release, tighten approximately 90° from that position, and move the Mg Charge Lever (168861) to stop rotation of the Gear.

Fix the mirror box side of the assembly to the Claws of the FC Ring (173719) at the lower rotation stop position (position where clockwise rotation stops) and mount the FC Base Plate Ass'y.

The S.S. consist of 61812526 (x2) and 61912026 (x1).

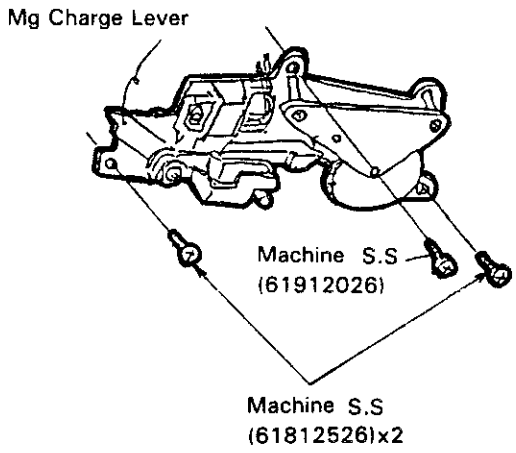


Fig. 41

C-1-3. Reassembly of Mirror Box Ass'y

1) Release the Shutter Charge Pin of the mirror box M-U Base Plate Sub-Ass'y.
2) Confirm that the Sector Driving Arm Ass'y has moved in the direction indicated by the arrow in Fig. 29. If not, rotate the ratchet gear in the counterclockwise direction.
3) Mount the Mirror Box Ass'y so that the M-U Slide Lever (L) is at the back of the Sector Driving Arm Ass'y
4) Confirm that the B Gear Shaft is in the hole of the mirror box.
5) Tighten the S.S. for the Mirror Box.
   Tap-Tite S.S. (69223576) x 4
   Machine S.S. (63926526) x 2
   Winding Base Plate Screw (168633) x 1

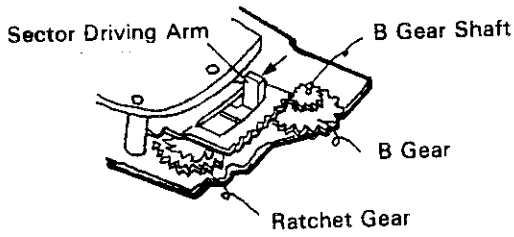


Fig. 42

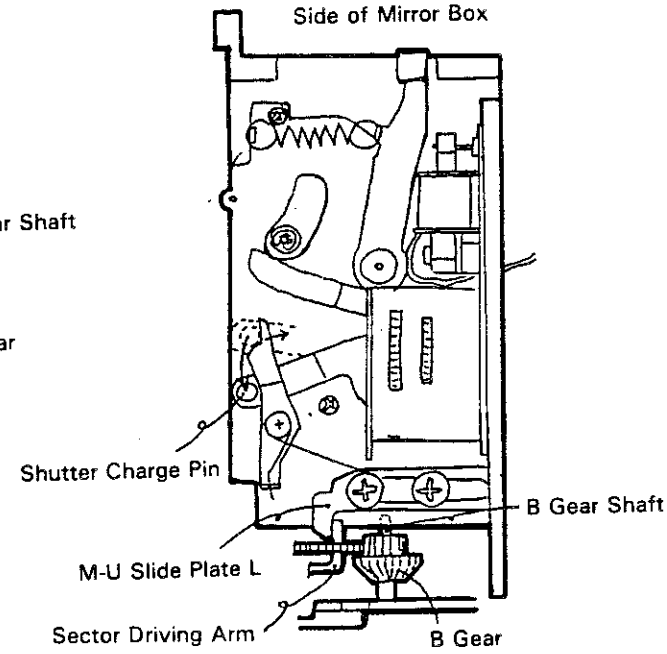
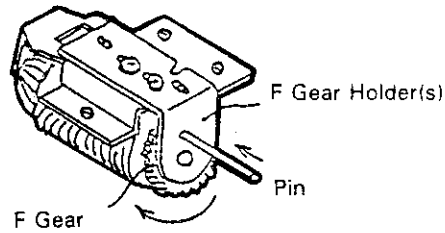


Fig. 43

C-2. REASSEMBLY OF F GEAR ASS'Y

1) Rotate the F Gear six times and insert the pin (with clip, etc.) into the holes of the F Gear Holder (S) and F Gear. (Fig. 31)
2) Mount the Sector Gear in the direction of arrow A. (Rotate Ratchet Gear and B Gear.)
3) Move the FC Lever and FC Ring to the Full Aperture position (direction of arrow B) and mount the F Gear Ass'y.
4) Tighten the S.S. (61812526) for the F Gear Ass'y and release the hand holding the FC Ring.
5) Pull out the pin temporarily holding the F Gear Ass'y in place and check operation of the FC Ring and FC Lever.
6) Loosen the Machine S.S., check operation of the FC Ring, adjust, and tighten again. Lock the screw with Cemedine 551A.
   (Note that when the amount of engagement play between the F gear and B gear is more than the center of the long hole, there is the danger of the FC Ring and F Gear becoming disengaged.)



[F Gear Ass'y]

Fig. 44

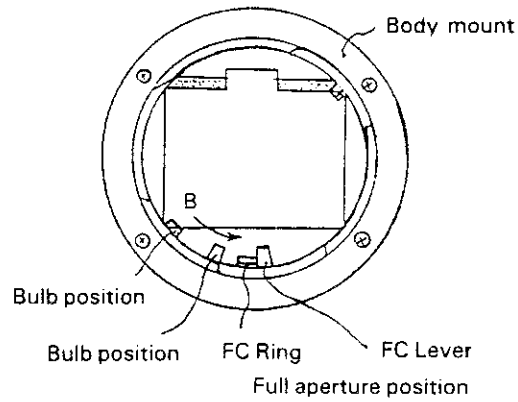


Fig. 45

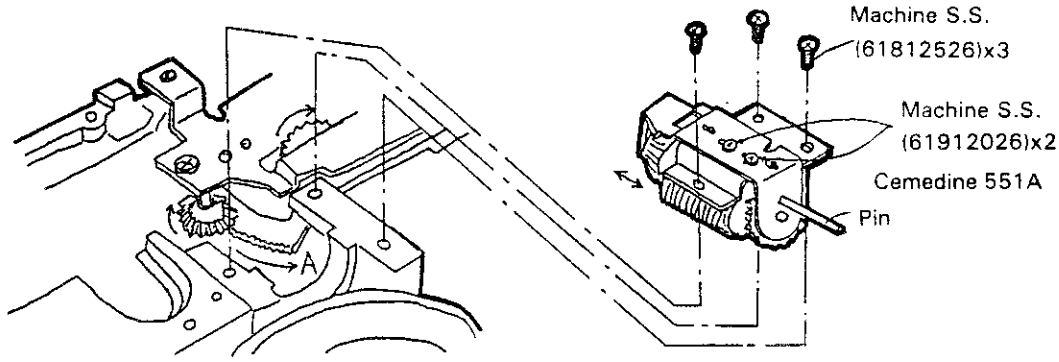
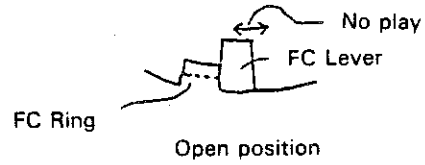


Fig. 46

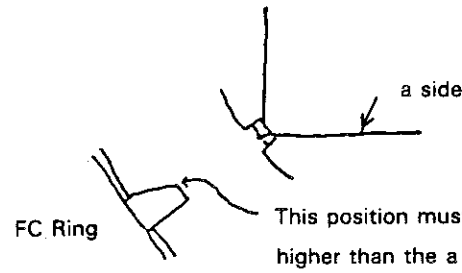
7) Mount the Winding Base Plate (LB) Ass'y.
8) At the bulb state, check the amount of FC Ring movement, FC Lever movement, and operation.

FC Lever: Must move smoothly from the aperture Full aperture position to closed position.



If there is play, adjust attachment of the F Gear Ass'y.

FC Ring: Bulb



C-3. REASSEMBLY OF WINDING BASE PLATE (U) ASS'Y

C-3-1. Reassembly of Winding Base Plate (U) Ass'y

1) Line up the Sprocket Gear Shaft with the sprocket hole and attach.
2) Insert the Motor Lead Wires into the Winding Base Plate (UB) Ass'y.
3) Line up the Spool Friction SP with the notch of the spool and attach the Winding Base Plate (U) Ass'y while pulling out the motor lead wires.

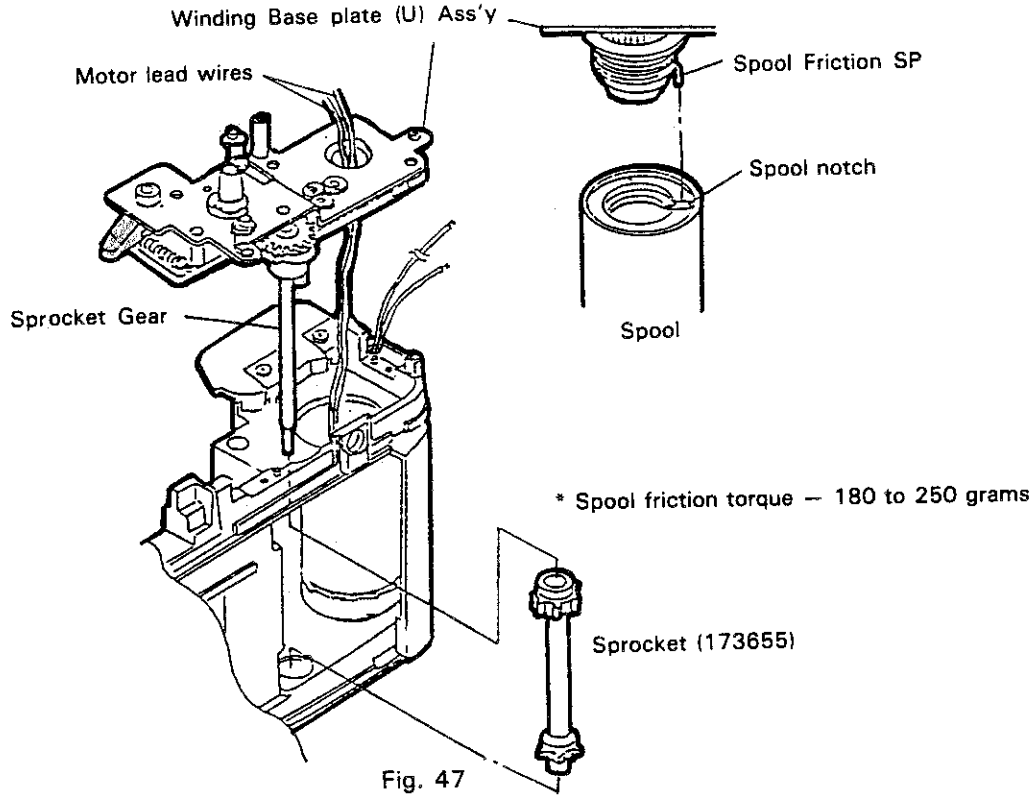


Fig. 47

C-4. REASSEMBLY OF ASSEMBLY PARTS

C-4-1. Sprocket Gear Reassembles

1) Lock the Double Wind Prevention Gear (168653) with the Limit Lever (168665).
2) Attach the S Gear Retainer (173656), Sprocket Spring (340616), and Winding Base Plate (UB) Ass'y (173A31).

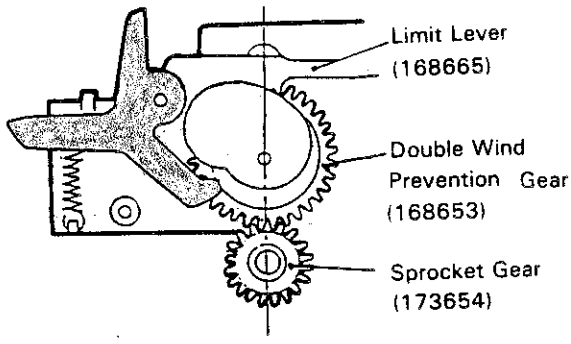


Fig. 48

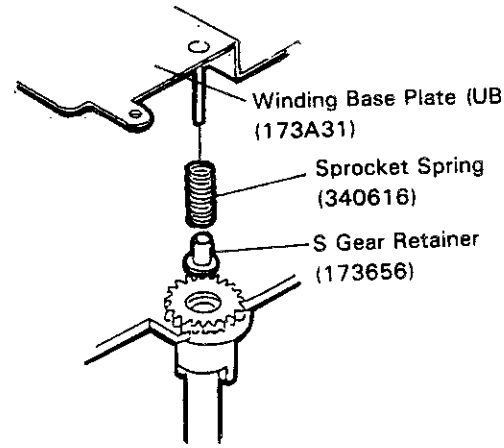


Fig. 49

C-4-2. Reassembly of Clutch Gear Ass'y

Attach as shown in Fig. 50.

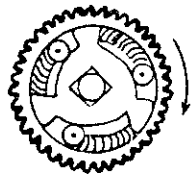
[Note]

Do not lubricate the inside of the gear.

[Inspection After Assembly]

Rotate the Clutch Gear (C) and confirm that it rotates smoothly in one direction and does not rotate in the other direction.

Clutch Roller Assembly Diagram



Direction of rotation

(Upper View of Clutch)

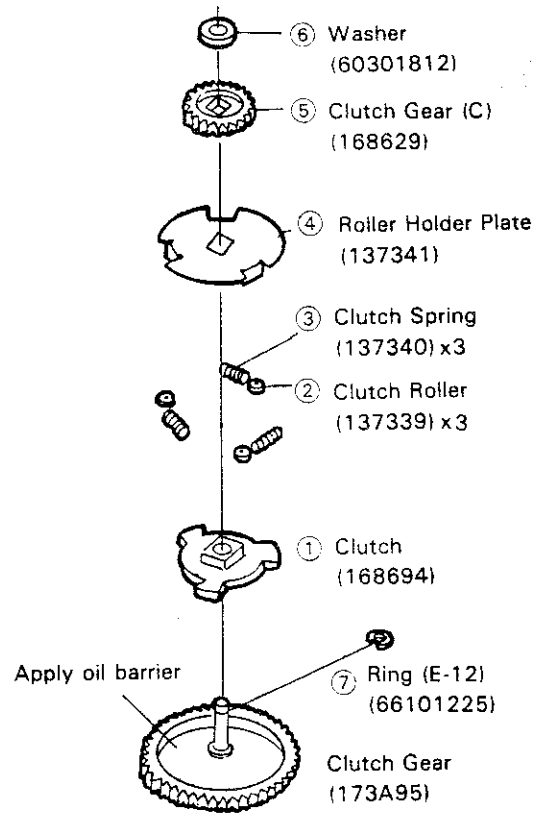


Fig. 50

C-4-3. Checking Operating Force of Winding Motor

Fix the motor pinion in place and make sure that the current is 1.0 to 1.5A when voltage of 5V is applied to the motor. Adjust using 0 to 3 friction washers.

Friction torque120 to 160 g cm

Soldering of Winding Motor Lead Wires

Solder the wires as shown in the diagram below.

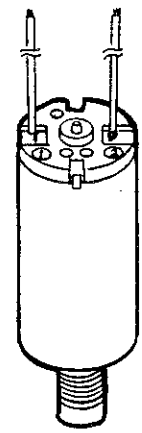


Fig. 51

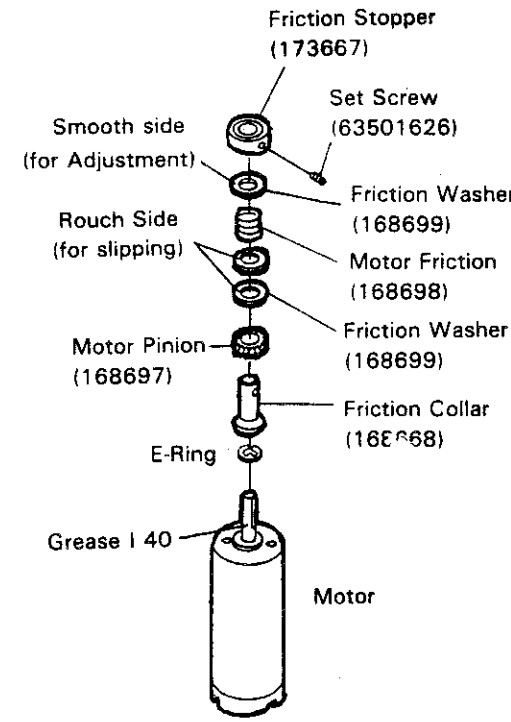


Fig. 52

C-4-4. Reassembly of Counter Ass'y

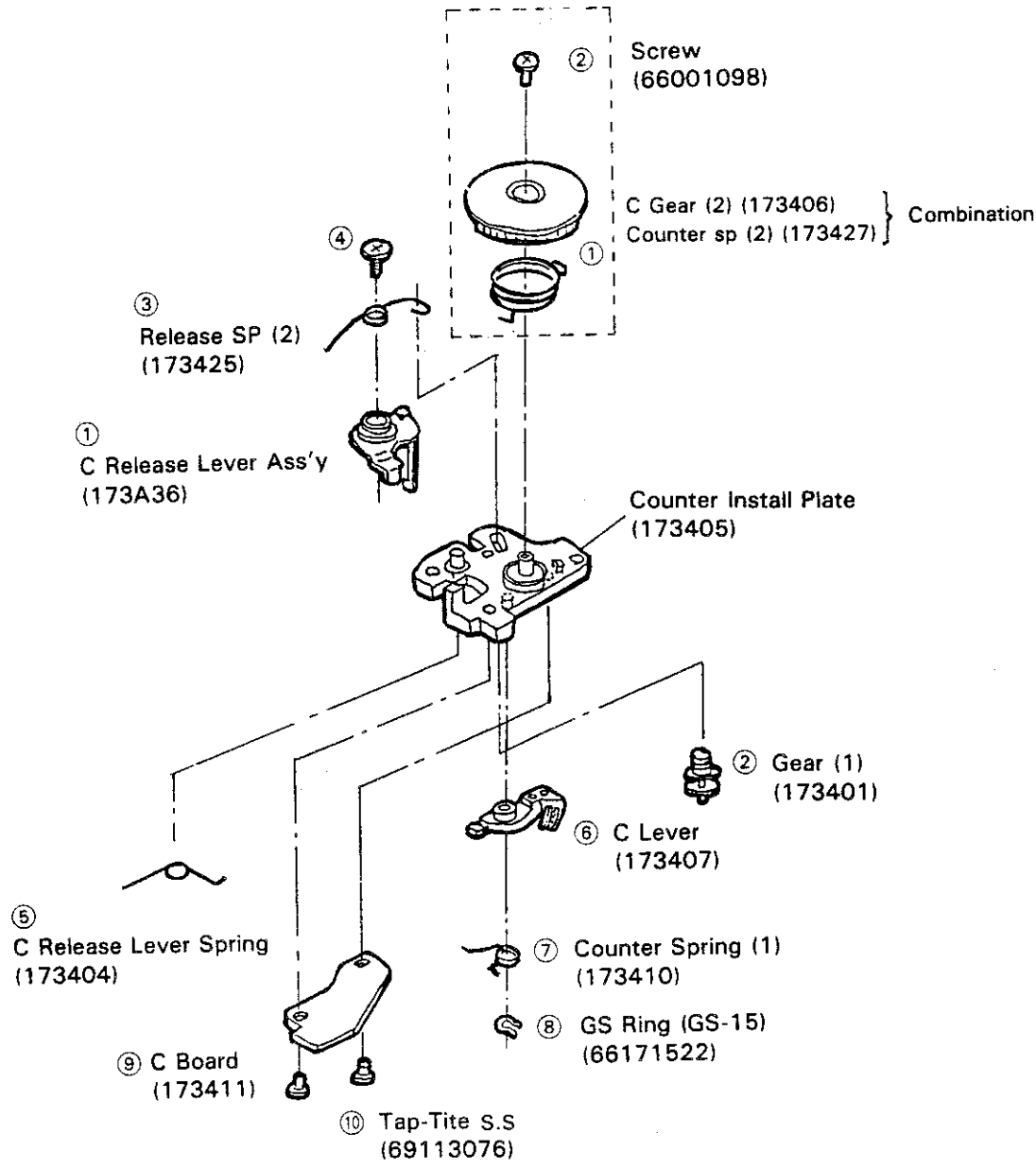
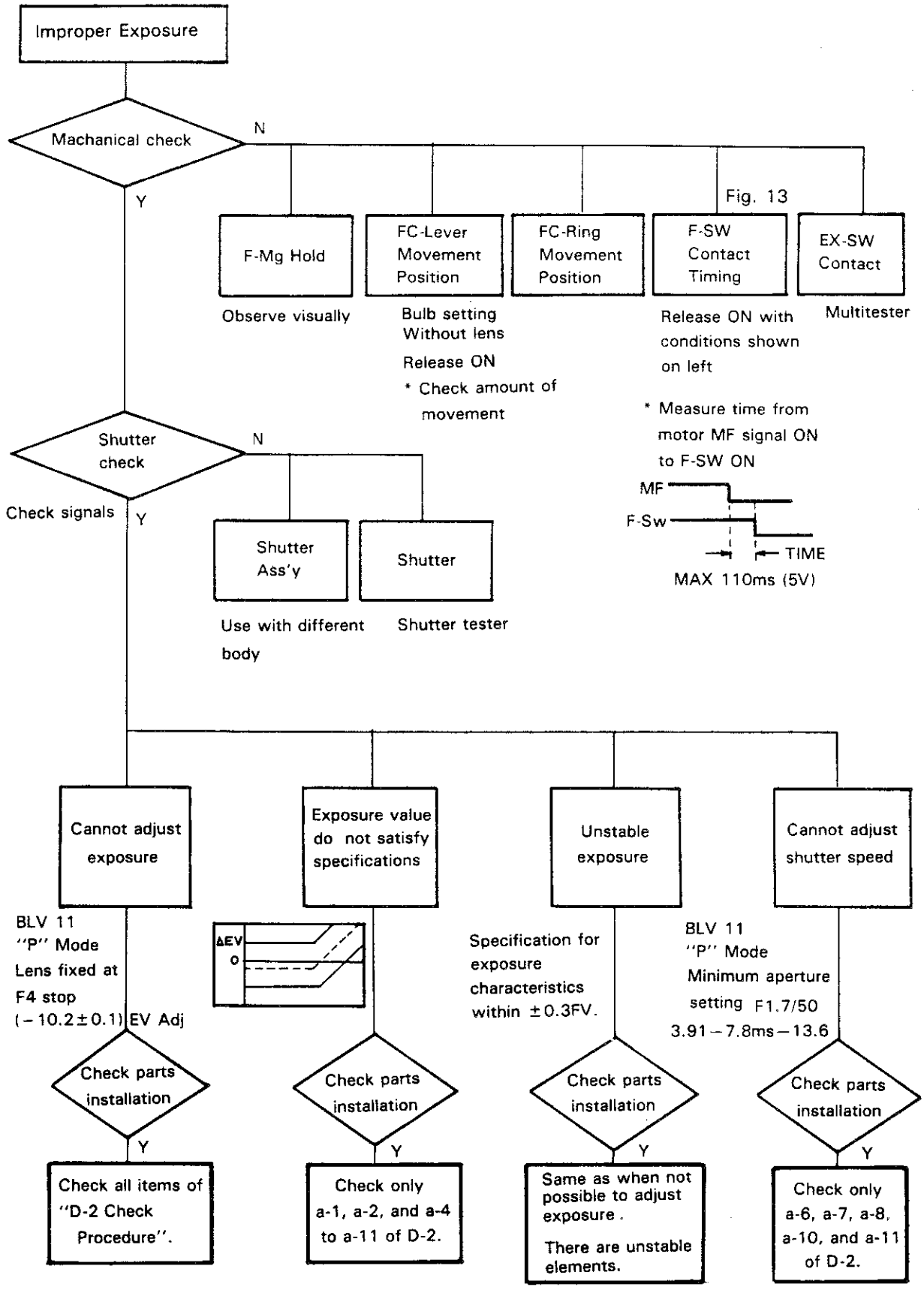


Fig. 53

D. VARIOUS CONDITIONS FOR MALFUNCTION

D-1. TROUBLESHOOTING PROCEDURE

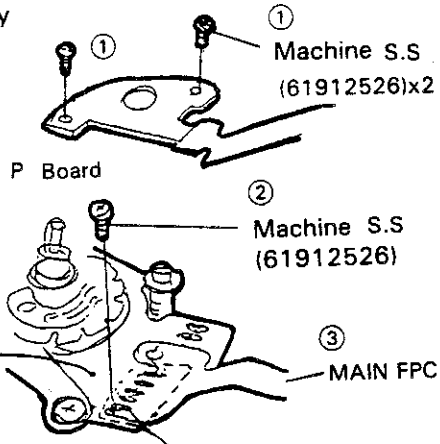
FLOW CHART a



D-2. CHECK PROCEDURE

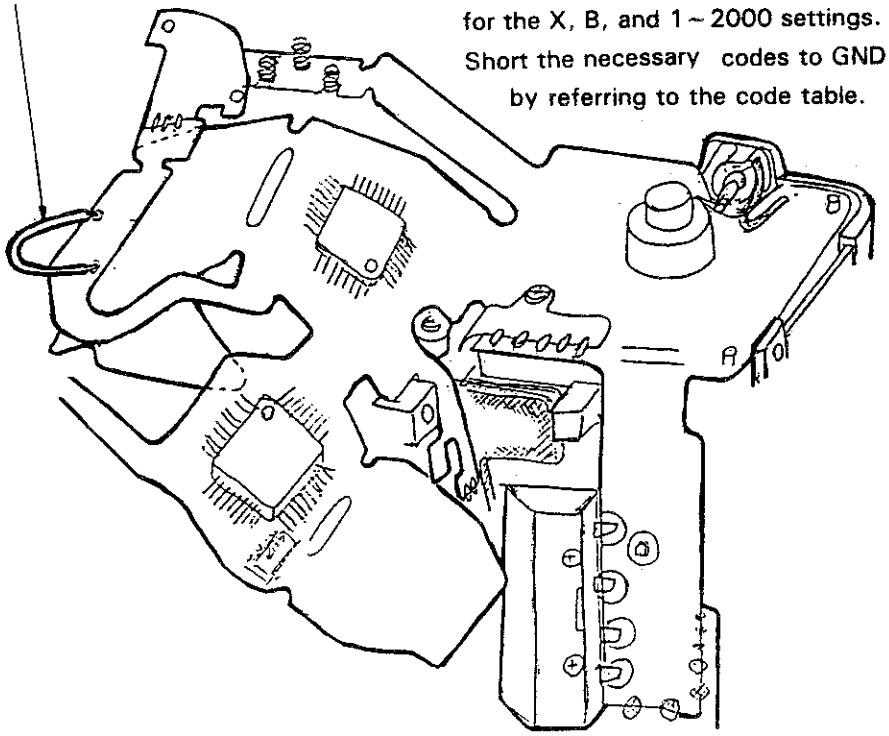
<Preparation 1>

Remove Main FPC from S Board Ass'y (173A38) in numerical order.



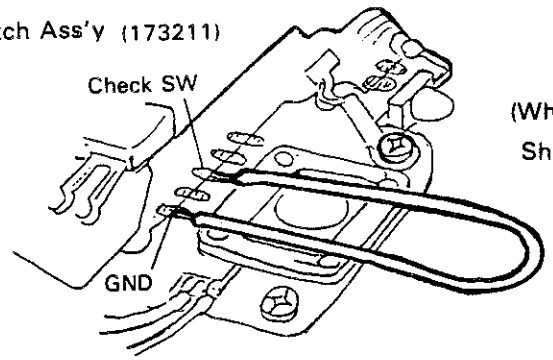
Be sure to connect Vpj and P when removing the P board.

*Separate resettings are required for the X, B, and 1 ~ 2000 settings. Short the necessary codes to GND by referring to the code table.

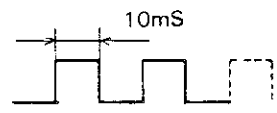
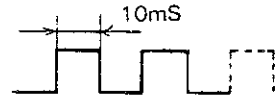
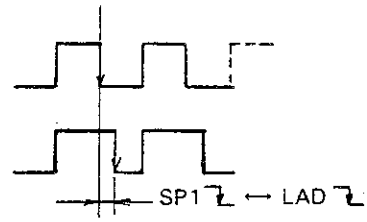
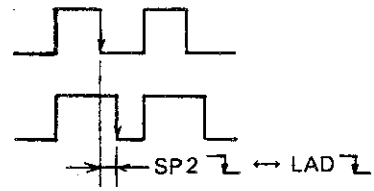
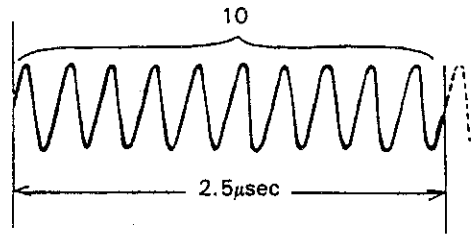
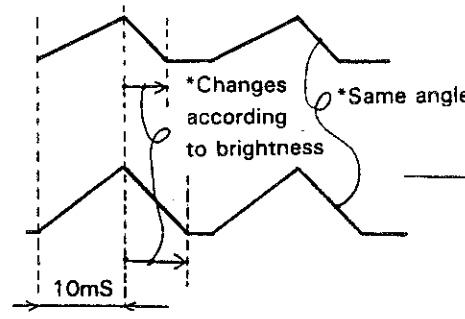


<Preparation 2>

Release Switch Ass'y (173211)

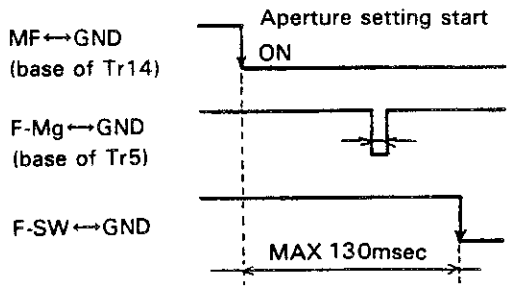
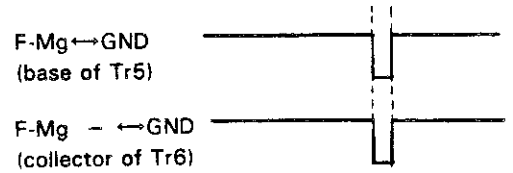


(When connecting with PH:ON Short 1st and 3rd from left)

Item	Measurement & Inspection	Conditions
a-1-1.	Confirmation of SP1 SP1←→GND  *When output of SP2 stopped	•Preparation 1. Checking method for each FPC point •Preparation 2. PH continuously ON. •BLV6 (Dark) equivalent
a-1-2.	Confirmation of SP2 SP2←→GND  *When output of SP1 stopped	•Preparation 1. •Preparation 2. •BLV15 (bright) equivalent
a-2-1.	Confirmation of SP1 LAD SP1←→GND LAD←→GND  *Changes according to brightness	•Preparation 1. •Preparation 2. •BLV6 (dark) equivalent
a-2-2.	Confirmation of SP2 LAD SP2←→GND LAD←→GND  *Changes according to brightness	•Preparation 1. •Preparation 2. •BLV15 (bright) equivalent
a-3.	Confirmation of OSC (oscillator) oscillation  Confirmation of approx. 4MHz	•Preparation 1. •Preparation 2. •Oscilloscope Conditions X-axis 0.5μS/DIV Y-axis 1V/DIV
a-4-1.	Confirmation of double integration CO←→VS (bright)  	•Preparation 1. •Preparation 2. •BLV15 (bright) equivalent
a-4-2	CO←→VS (dark) 	•Preparation 1. •Preparation 2. •BLV6 (dark) equivalent

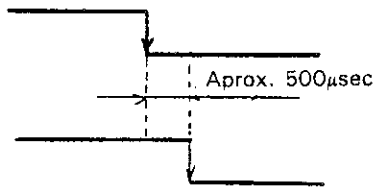
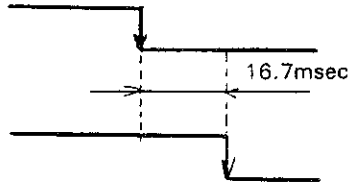
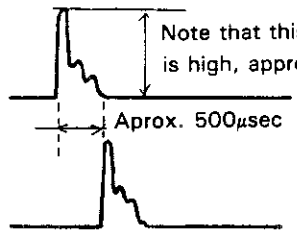
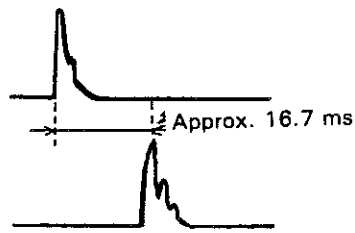
<table>
<tr><th>Item</th><th>Measurement & Inspection</th><th>Conditions</th></tr>
<tr><td>a-5.</td><td>Confirmation of SPD (optical current)

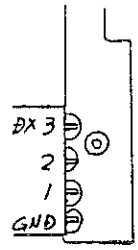
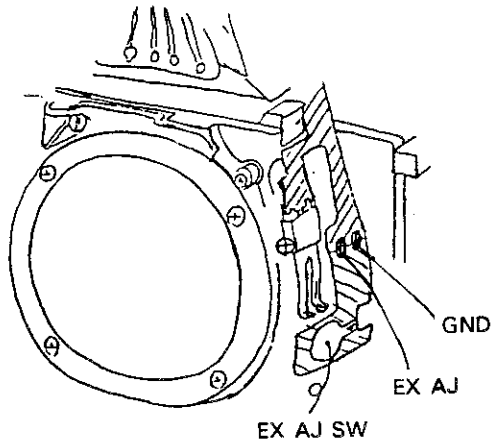
PDK (PHK IC 1 PIN 10) : VS Aprox. 18mV
(bright)
PDK (PHK IC 1 PIN 10) : VS Aprox. −144mV
(dark)

* Use sufficiently large current values</td><td>•Preparation 1.
•Preparation 2.
•Use F1.7/50 lens
•BLV15 (bright) equivalent
↓
•BLV8 (dark) equivalent</td></tr>
<tr><td>a-6-1.</td><td>F-Mg signal confirmation
* Refer to time chart
 
</td><td>•Preparation 1.
•preparation 2.
•Use F1.7/50 lens (set to minimum of F16)
•BLV11 equivalent
Release ON with above conditions</td></tr>
<tr><td>a-6-2.</td><td>F-Mg drive circuit confirmation
 
</td><td>•Preparation 1.
•preparation 2.
•Use F1.7/50 lens (set to minimum of F16)
•BLV11 equivalent
Release ON with above conditions</td></tr>
<tr><td>a-7-1.</td><td>Confirmation of shutter time codes

<table>
<tr><th>Time code</th><th>Te</th><th>T2</th><th>T1</th><th>T0</th></tr>
<tr><td>1/2000</td><td>1</td><td>1</td><td>1</td><td>0</td></tr>
<tr><td>1000</td><td>1</td><td>1</td><td>0</td><td>0</td></tr>
<tr><td>500</td><td>1</td><td>1</td><td>0</td><td>1</td></tr>
<tr><td>250</td><td>1</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>125</td><td>1</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>* 60</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
<tr><td>30</td><td>1</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>15</td><td>0</td><td>0</td><td>1</td><td>0</td></tr>
<tr><td>8</td><td>0</td><td>0</td><td>1</td><td>0</td></tr>
<tr><td>4</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>2</td><td>0</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>* 1''</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>

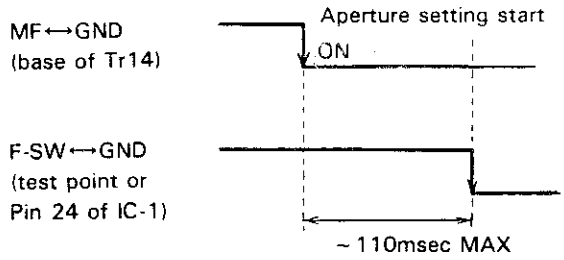
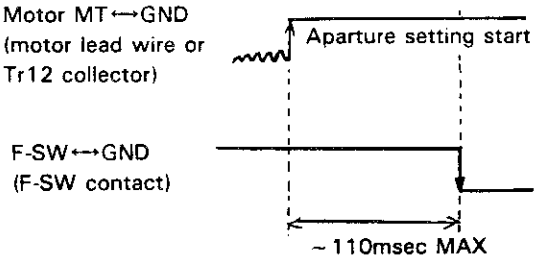
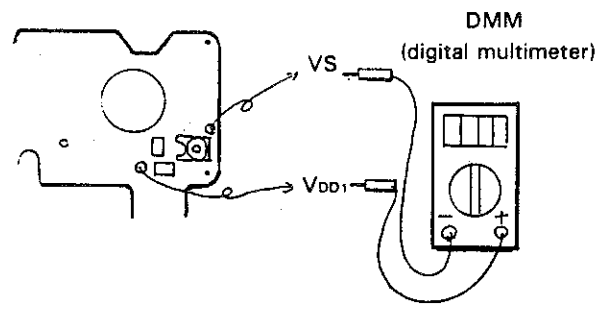
Set to mode indicated by * mark and confirm code</td><td>•Preparation 1.
First set a with the lead wires from test points T0 through T3. Following this, solder between the main FPC and S board.
•Preparation 2.
•Set the mode (S board) based on the time code * marks</td></tr>
</table>

Item	Measurement & Inspection	Conditions
a-7-2.	Confirmation of shutter control signals * Refer to time chart 1st MG←→GND (CPU Pin 28 or base of Tr4) 2nd Mg←→GND (CPU Pin 29 or base of Tr3)  1st Mg←→GND 2nd Mg←→GND  	Same as above Release ON • 1/2000 Same as above Release ON • 1/60
a-7-3.	Confirmation of shutter Mg operation 1st Mg←→GND (Mg lead wire) 2st Mg←→GND (Mg lead wire)   * If these waveforms are not observed, possible causes are defective Tr3 or 4, or no mechanical hold of shutter Mg.	

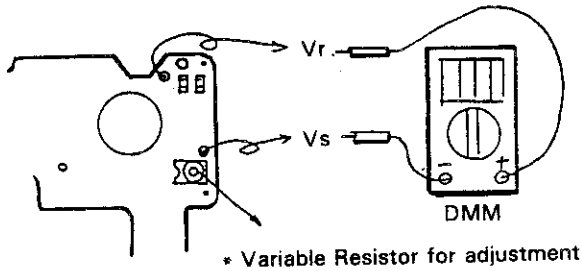
Item	Measurement & Inspection	Conditions
a-8.	Confirmation of D-X (ISO) * 100 (125, 160) * 200 (250, 300) * 400 (500, 640) *1 : Aprox. 4.7V (V_{DD} voltage) 0 : Approx. 0V *Insert the DX film indicated by the * marks and confirm the codes.	 *Use a digital multimeter or multitester. Connect the − side of the multitester to the GND of the camera and connect the + side of the multitester to the various measurement points.
a-9.	Confirmation of back light compensation function +1.5EV compensation by turning ON compensation SW Compensation is performed by shutter speed.  Remove front cover "H" when SW OFF Approx. 4.7V "L" when S-W ON Approx. 0V If the above ratings are not satisfied, such as when either is "L" when the S-W is ON or OFF, the following are possible causes: EXAJ pattern is shorted to GND somewhere, soldering failure of Pin 26 of IC-1, etc.	•Preparation 1. •Preparation 2. Multitester and multimeter or oscilloscope

Item	Measurement & Inspection	Conditions
a-8.	Confirmation of D-X (ISO)	

ISO	Dx3	Dx2	Dx1
No code or corresponds to (25, 32, 40)	1	1	1
50 (64, 80)	0	1	1
* 100 (125, 160)	1	0	1
* 200 (250, 300)	0	0	1
* 400 (500, 640)	1	1	0
800 (1000, 1250)	0	1	0
1600 (2000, 2500)	1	0	0
3200 (4000, 5000)	0	0	0

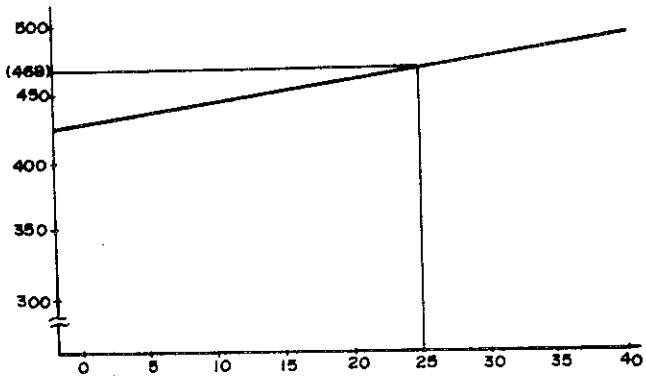
Item	Measurement & Inspection	Conditions
a-10-1.	Confirmation of F-SW (aperture setting completion SW)  Perform the above measurements with a universal counter or oscilloscope. Universal counter: capable of time interval measurement between two inputs Trigger settings { Channel A ⌐‾ / Channel B ⌐‾ Oscilloscope: Channel 1 MF ⌐‾ trigger setting Settings X axis 20msec/DIV Y axis 1V/DIV	Under the assumption that there is no problem with the mechanical confirmation of the F-SW (ON⟷OFF), the electrical S-W ON timing is measured and confirmed here. •Preparation 1. •Preparation 2. •Release ON at Regulated voltage of 5V
a-10-2.	Confirmation of F-SW Timing of Body Alone  Perform the above measurements. Universal counter: capable of time interval measurement between two inputs Trigger settings { Channel A ⌐‾ / Channel B ⌐‾ Oscilloscope: Channel 1 MR ⌐‾ trigger setting X axis and Y axis are the same as A-10-1.	Motor MR⟷GND (motor lead wire blue or Tr12 collector) F-SW⟷GND (F-SW contact) Measurement as if FPC not installed (body checker needed). Connect the wire from the checker and the GND to the mirror box. Checker settings •SINGLE release •Release ON with arbitrary time
a-11-1.	Measurement of V-S Voltage  VS⟷VDD1 = approx. 1.25V	•Preparation 2.

Item	Measurement & Inspection	Conditions
a-11-2.	Measurement and Adjustment of Vr Voltage	•Preparation 2.



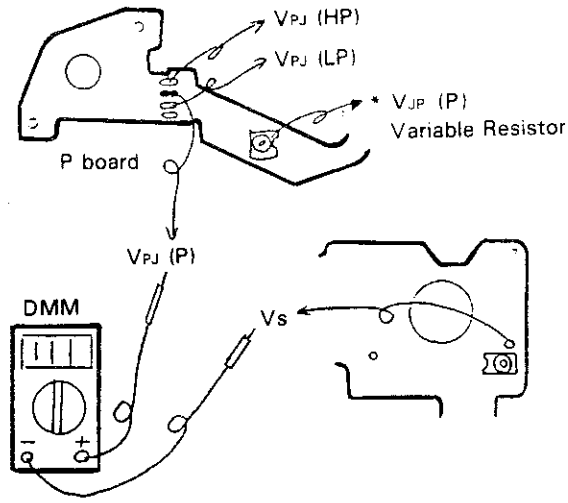
* Variable Resistor for adjustment

(Note)
*Even if not 468mV, check careful before adjusting again as this is a voltage with temperature characteristics.

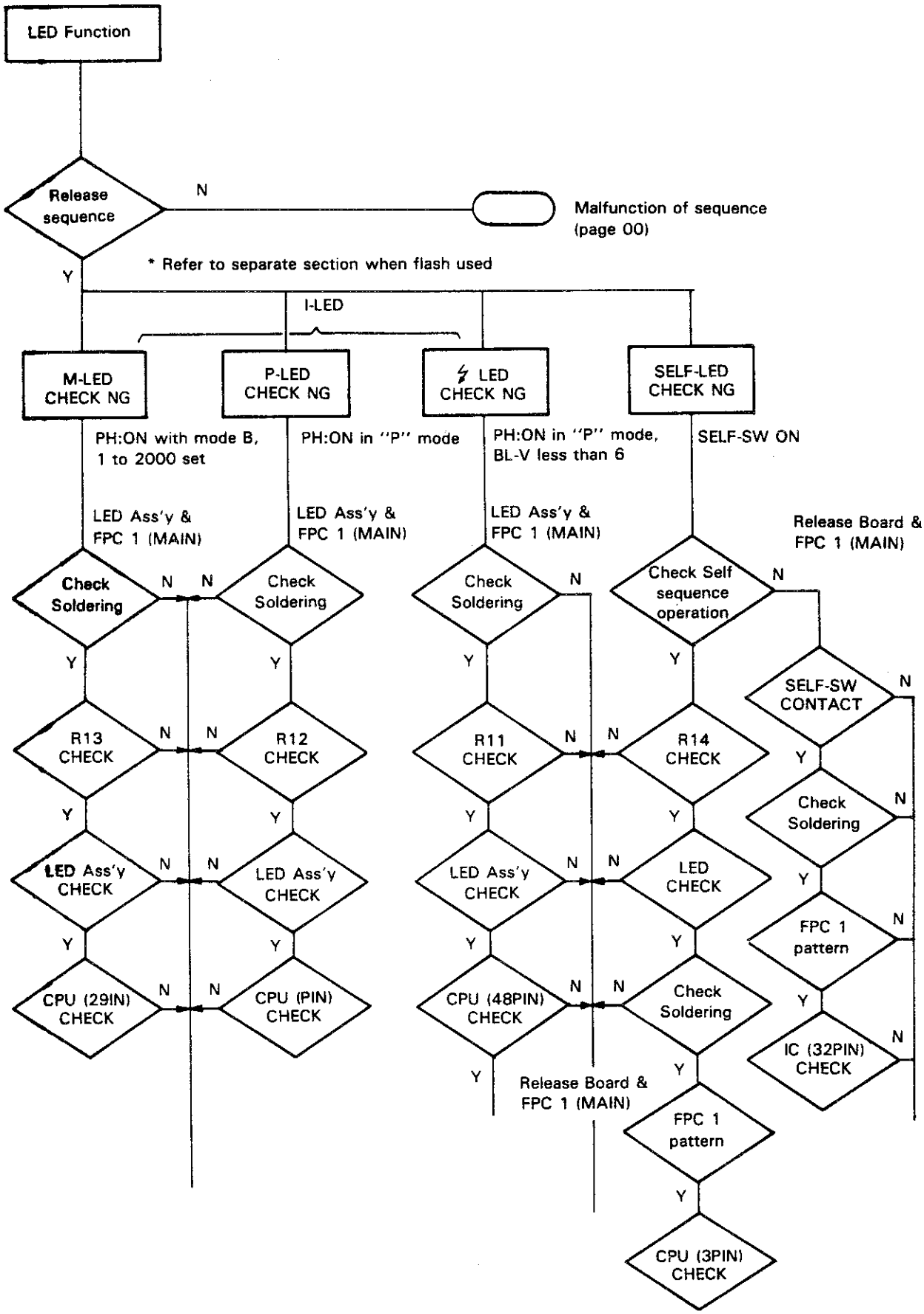


Vr⟷Vs = approx. 468m-V (25°C)

°C	mV	°C	mV	°C	mV	°C	mV
0	428.7	10	444.4	20	460.1	30	475.9
1	430.3	11	446.0	21	461.7	31	477.4
2	431.9	12	447.6	22	463.3	32	479.0
3	433.5	13	449.2	23	464.9	33	480.6
4	435.0	14	450.7	24	466.4	34	482.1
5	436.6	15	452.3	25	468	35	483.7
6	438.2	16	453.9	26	469.6	36	485.3
7	439.7	17	455.4	27	471.1	37	486.8
8	441.3	18	457.0	28	472.7	38	488.4
9	442.9	19	458.6	29	474.3	39	490.0

Item	Measurement & Inspection	Conditions
a-11-3.	Measurement and Adjustment of VPJ Voltage  Step 1: Confirmation of voltage between VPJ (P) and VS Approx. 185 mV * If incorrect, adjust by the volume. Refer to the diagram. Step 2: Confirmation of voltage between VPJ (HP) and VS Approx. 205 mV Step 3: Confirmation of voltage between VPJ (LP) and VS Approx. 165 mV * When there is no voltage difference of approximately 20mV between the various modes, check the values of resistors R1, R2, and R3.	•Preparation 2. As VPJ will shift if the Vr voltage is adjusted after VPJ adjustment, adjust VPJ after adjusting Vr first.

FLOW CHART b


LED Function
Release sequence
N
Malfunction of sequence (page 00)
Y
* Refer to separate section when flash used
I-LED
M-LED CHECK NG
P-LED CHECK NG
LED CHECK NG
SELF-LED CHECK NG
PH:ON with mode B, 1 to 2000 set
PH:ON in "P" mode
PH:ON in "P" mode, BL-V less than 6
SELF-SW ON
LED Ass'y & FPC 1 (MAIN)
LED Ass'y & FPC 1 (MAIN)
LED Ass'y & FPC 1 (MAIN)
Release Board & FPC 1 (MAIN)
Check Soldering
Check Soldering
Check Soldering
Check Self sequence operation
SELF-SW CONTACT
R13 CHECK
R12 CHECK
R11 CHECK
R14 CHECK
Check Soldering
LED Ass'y CHECK
LED Ass'y CHECK
LED Ass'y CHECK
LED CHECK
FPC 1 pattern
CPU (29IN) CHECK
CPU (PIN) CHECK
CPU (48PIN) CHECK
Check Soldering
IC (32PIN) CHECK
Release Board & FPC 1 (MAIN)
FPC 1 pattern
CPU (3PIN) CHECK

1. **P-LED**

(Program-LED)

P-LED flashes or is not illuminated in HP (High Speed Program), P (Program), or LP (Low Speed Program) mode

a. Shutter speed and exposure are correct (use F1.7/50 MM lens — set to minimum aperture of F16)
   * Defective LED or soldering failure of FPC 1 & LED Ass'y
   * Defective or soldering failure of R12
   * Improper soldering of CPU Pin [1]
   * Refer to separate P warning if there is only flashing and no illumination

b. Exposure also incorrect
   * M (Manual) indication occasionally or always on
     <cause> ..... Time code failure
     <check> ..... S Board check Pin (13) to (16) of CPU
   * Others Refer to light intensity improper

2. [⚡] LED (Flash Charge Indication LED)

a. When flash used, [⚡] LED does not flash when charging completed
   * Contact between shoe contact and FPC SP
   * Defective or soldering of R [19]
   * Soldering of IC Pin [38]

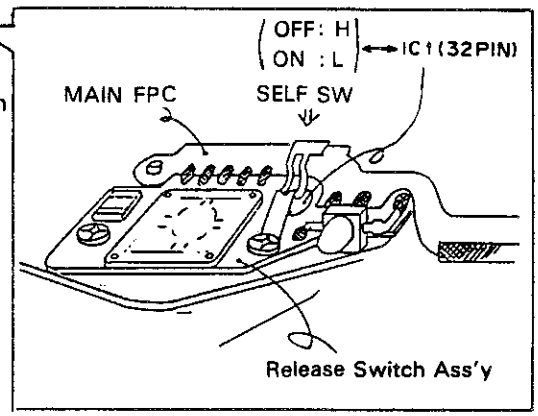
b. No [⚡] LED flashing at dim light
   * LED defective or soldering of FPC 1 & LED Ass'y
   * Defective or soldering failure of R11
   * Improper soldering failure of CPU Pin [48]

3. SELF LED (Self-timer LED)

No Self-timer LED illumination when SELF S-W ON

a. Shutter sequence works after 10 seconds
   * LED defective or mistake mount in wrong direction
     Check with multitester
   * Check Break in FPC pattern
   * Damage or soldering failure of R [14]
   * Check soldering failure of CPU Pin [3]

b. Shutter sequence does not work
   * Defective Self Contact SW
     Confirm with SW ON



4. M-LED (Manual-LED)

No M-LED illumination in X, B, 1 to 2000 modes

a. Shutter Sequence works right
   * Defective LED
   * Soldering failure of FPC 1 (MAIN) & LED Ass'y
   * Defective or soldering failure of R [13]
   * Soldering faiure of CPU Pin [2]

b. No shutter sequence
   Refer to malfunction of sequence (page 50)

5. Improper exposure (LED remains flashing)

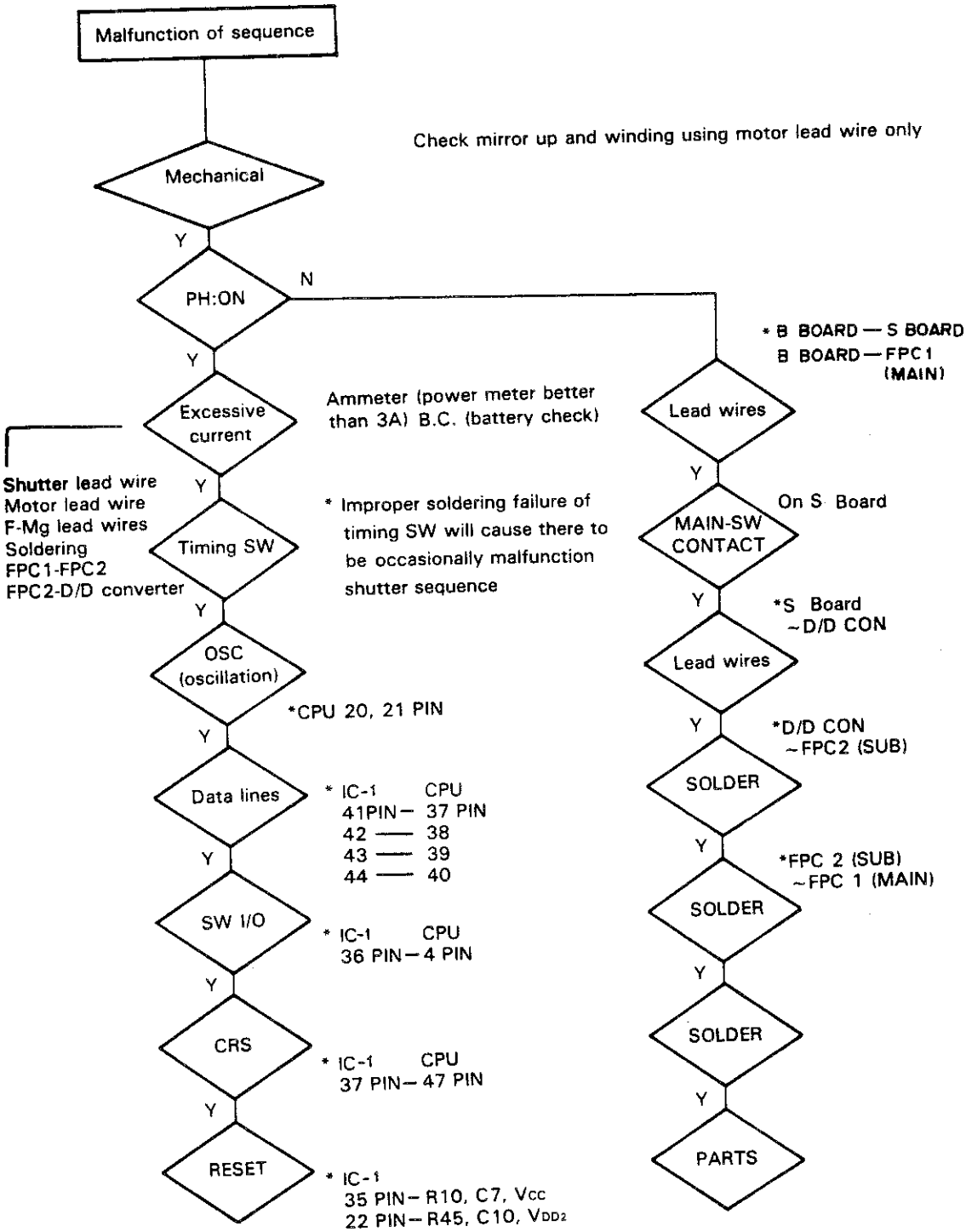
* Defective SPD or check pattern from SPD to IC 1

6. P Warning (With F1.7/50 MM type lens, P warning flashing when switched from F8 to F11)

Confirmation of PC-SW

Confirm that PC-SW:OFF (H) to ON (L) between F8 and F11 with F1.7/50 MM type lens

FLOW CHART c



1. Confirmation of DC-DC Converter

* DC-DC check in PH:ON state

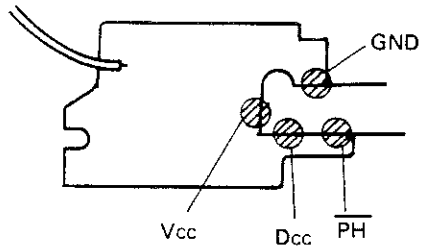
  Short between CK and GND in any mode

  Vcc — 4.7V

  Dcc — 4.6V

  PH — "L"

Set arbitrarily by V_{BB} 4 to 5V



* DC-DC check in PH:OFF state

  Short between CK and GND in any mode is released

  (PH:OFF eight seconds after release)

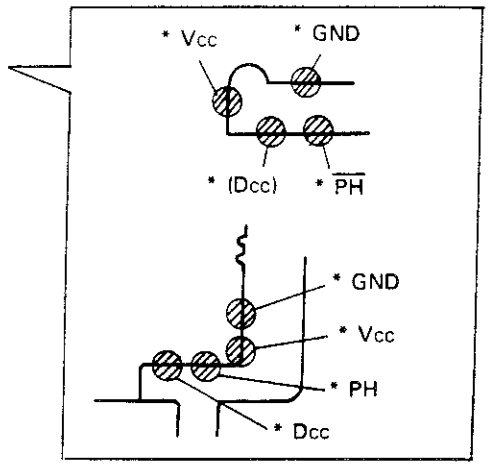
  Vcc — 4.7V (no change)

  Dcc — "L"

  PM "H" from AIC

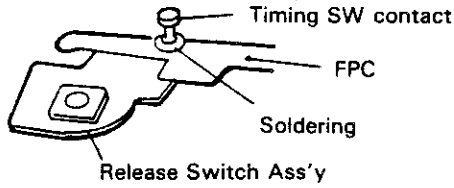
When the results of the above checks are unsatisfactory check the solder between DC-DC converter, SUB FPC, and MAIN FPC. Pay special attention to the areas marked with *.

Also check Pin 27 (VCC), Pin 29 (PH), and Pin 31 (DCC) of AIC.

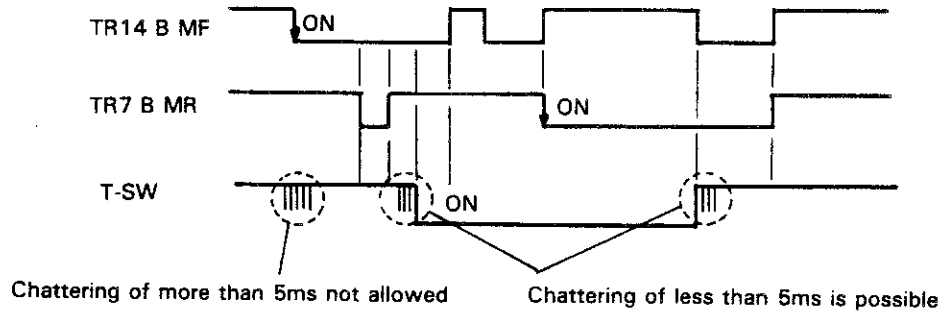


2. Checking of Timing SW

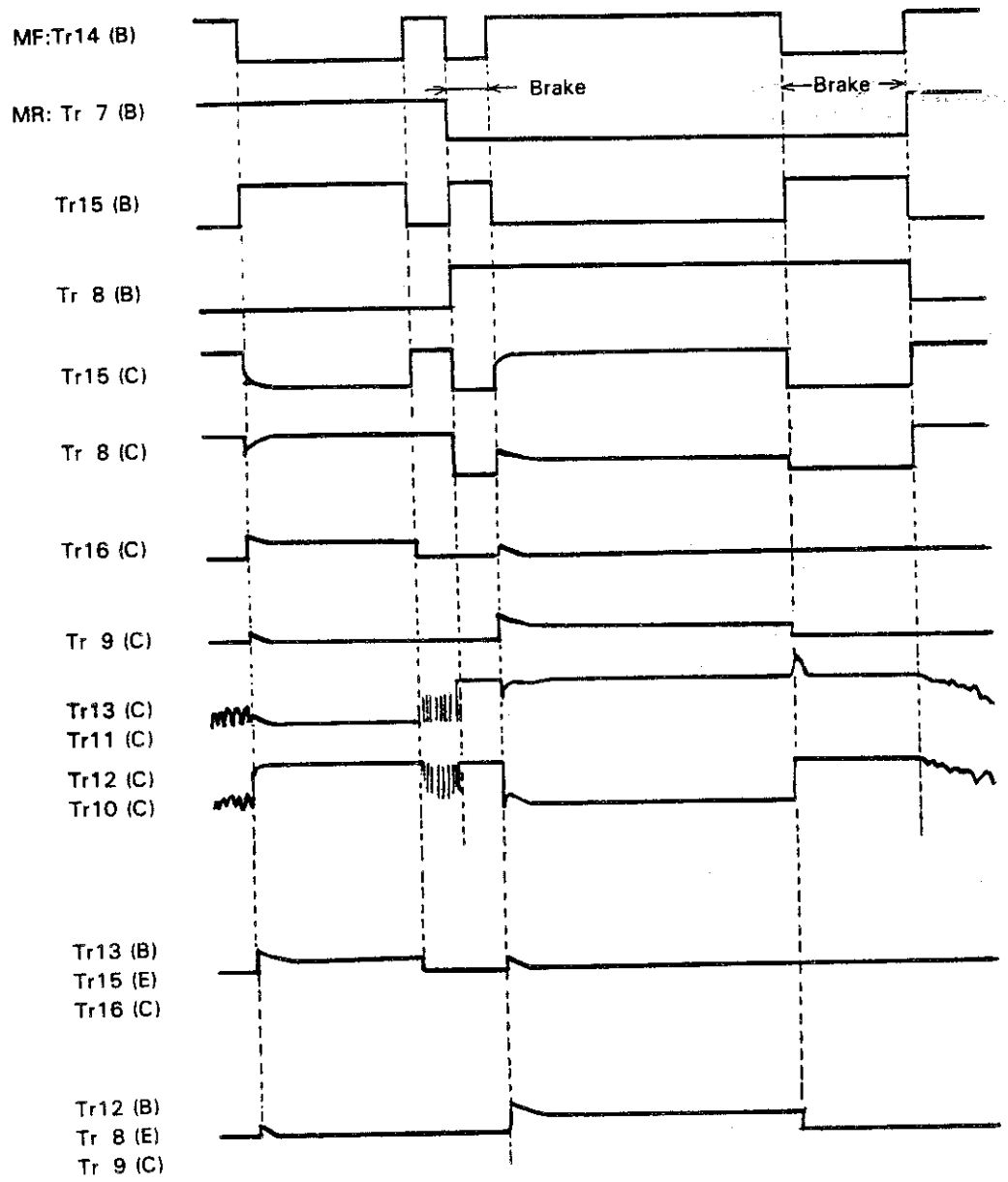
* Set T-SW to OFF (H) after the completion of winding
* Set T-SW to ON (L) with mirror up



Measure the timing at the T-SW and base of TR7 and TR14 of the main FPC (refer to parts location diagram or wiring diagram).



Motor Drive Circuit Waveforms



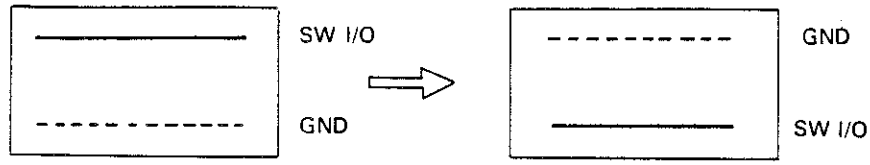
D-3. OTHERS

- Battery check

Voltage	LED Display	Operation	
3.7V	Normal	Normal	Normal
3.3V	Flashing , P, or M-LED	Normal	Alarm for battery Replacement
2.9V	ALL LED flashing	No operation	No battery power

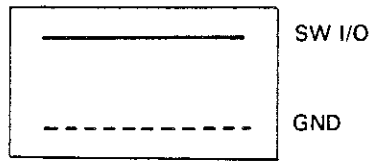
- Adjust Ra5 with regulated voltage of 2.8V

SW I/O H → L



If this is "L", adjust so that it goes to "H".

- Confirm S-W I/O at regulated voltage of 3.2V

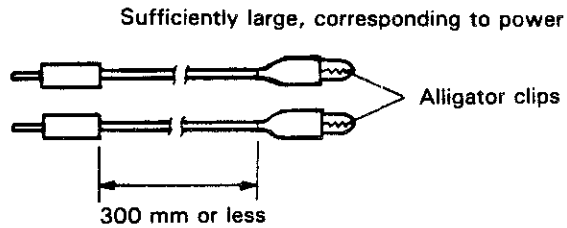


(Adjustment Method)

Short between V_{PJ} and P Short between CK and GND

A	CPU
D0 (44 PIN)	04 0
D1 (43 PIN)	05 1
D2 (42 PIN)	06 1
D3 (41 PIN)	07 0

Designated power cable for use of regulated voltage (3A Type)



TP CPU (Pin 6)

Short between TP and GND

D-4 FAST CHECK

1. Check the following when the camera does not operate.

- Check battery or power supply status.
- Check contacts of Main SW.
- Check solder position of B-Board red and black lead wires.
- Check soldering failure of FPC-2 (SUB) and DC/DC Converter.
- Check soldering failure of between FPC-1 and FPC-2.
- Check soldering failure of between FPC-1 and S-Board.
- Check soldering failure and parts of Tr1 and Tr17 on main FPC (FPC-1).
- Check Vcc voltage at Pin 27 of IC-1 (AIC) and check V_{DD} voltage at Pin 28.
- Check Vcc voltage at Pin 19 of IC-2 (CPU).
- Check soldering failure and parts of C7, R10, and C10, R15 on main FPC (FPC-1).
- Check OSC frequency (4MHz).
- Check the following pins of IC-1 (AIC).

  VS (Pin 16) ..... VS←→V_{DD} = 1.25V

  PH (Pin 29) ..... GND←→PH = 0V

  TRB (Pin 30) ..... GND←→RESET = 4.5~5V

  GND (Pin 17, 39) ..... Pin 17←→Pin 39 = 0Ω

- Check the following pins of IC-2 (CPU)

  D3—D0 (Pin 37—Pin 40) ..... Check FPC only

  CRS (Pin 47) ..... GND_{CRS} = 4.5—5V

  RESET (Pin 22) ..... GND_{RESET} = 4.5—5V

  GND (Pin 41) ..... GND_{GND} = 0Ω

2. Check the following when camera does improper function

- Check solder position of motor lead wires (blue and white).(check also motor side.)
- Motor and CPU (Pin 9)←→Tr14 (B), CPU (Pin 10)←→Tr7 (B)

  Tr7, Tr8, Tr9, Tr10, Tr11, Tr12, Tr13, Tr14, Tr15, Tr16, D2, D3
- Check T-SW

  SW: ON←→OFF

  SW←→CPU (Pin 5) Check lead wires and soldering failure.
- Check F-SW

  SW: ON←→OFF

  SW←→AIC (Pin 24) Check lead wires and soldering failure.
- Check SW I/O

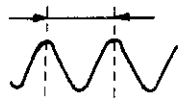
  CPU (Pin 4)←→AIC (PIN 36) Check lead wires and soldering failure.

3. **Check the following when there is improper metering or improper exposure.**
   - SPD soldering failure and SPD itself (check for cracks or scratch of filter).
   - Vs voltage ..... Vs⟷V_{DD} = 1.25V
   - Vr voltage ..... Vs⟷Vr = 468mV (Ra3, R6)
   - V_{PJ} voltage ..... Vs⟷V_{PJ} = 185mV (Ra1, R1, R2, R3)
   - Check soldering failure and parts for main FPC parts shown below.

     C2, C3, C4

     OSC (4MHz)

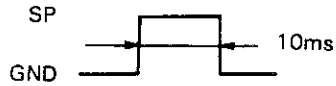
     0.25μsec



   - Check DX contact between board and FPC soldering failure.
   - Check the following pulse waves.

     CPU (Pin 45) AIC (Pin 24) ..... GND—SP1

     CPU (Pin 46) AIC (Pin 3) ..... GND—SP2



   - AIC (Pin 1)⟷CPU (Pin 23) Check FPC wire.

     GND⟷LAD Check pulse signal.

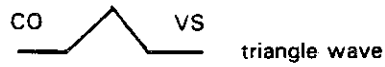
   - AIC (Pin 41 to Pin 44)⟷CPU (Pin 37 to Pin 40)

     Check lead wires and soldering failure.
   - SW I/O

     CPU (Pin 4)⟷AIC (Pin 36)

     Check lead wires and soldering failure.
   - Check Offset adjustment failure.

     VS⟷PHA voltage = VS⟷PHK voltage
   - Check integration waveform of AIC (Pin 6).



   - Check F-Mg circuit (Tr5 and Tr6).

     IC2 (CPU Pin 12)⟷Tr5⟷Tr6⟷ F-Mg⟷FPC (V_{BB})

     Black lead wire Red lead wire

     Check lead wires and soldering failure.

4. **Check the following when the exposure is unstable.**

- Check the following parts within the amp.

C1 ⊣⊢ Vs voltage — Check whether or not there is instability and noise.
NG

C8 ⊣⊢ Vr voltage — Check whether or not there is instability and noise.
NG

Check soldering failure of C2

Check soldering failure of R7

Check soldering failure of Ra4

C6 ⊣⊢ V_{DD1} voltage — Check whether or not there is instability and noise.
NG

C5 ⊣⊢ V_{CC} voltage — Check whether or not there is instability and noise.
NG

- Check for instability in the shutter speed at Program, HP, LP.
- Check for the specified position and function of the FC-Ring
- Check for improper adjustment of position and function of EV Tester or GND line.

5. **Others**

- No illumination of I-LED (Indicator LED)

"P" R12
"M" ..... R13 — Check soldering failure between FPC-1 and I-LED
"⚡" R11

- When P-LED blinks at program mood, without lens set or P-LED not to light-up at Reprogram mood with lens (set F.16) check.
  FPC wire of A-IC (Pin 5)⟷PC-SW

No illumination of SELF-LED

- Check soldering failure and parts of R14.
- Check soldering failure between Release-Board and FPC-1.
- Check parts of Self-LED.
- Check soldering failure between CPU (Pin 3)

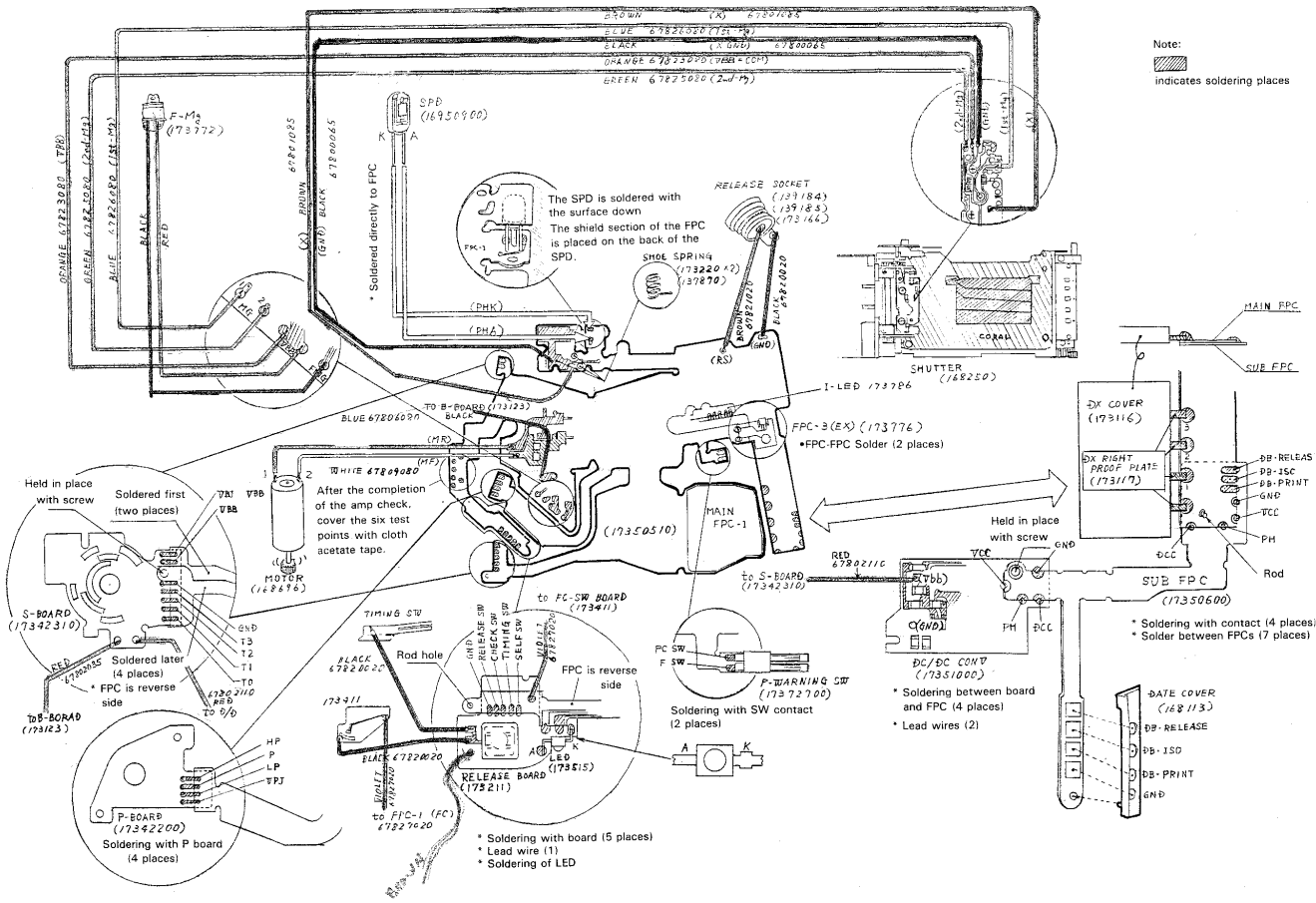
Three blank shots malfunction

- Check for improper contact of Film Counter SW.
- Check FPC wire between AIC (Pin 23)⟷FC SW
- EV compensation does not operate.
  * Check EV compensation SW (EX sw).
  * Check FPC wire of AIC (Pin 26)⟷EX sw
  * Self, Release, and Check switches do not operate.
    AIC (Pin 32, Pin 33, Pin 34).
    Check soldering failure between FPC-1 and Release-switch Ass'y
  * Shutter malfunction
    Check:
    1st Curtain (CPU Pin 28) Tr4
    2nd Curtain (CPU Pin 29) Tr3

* Date Back Print Signal: Nothing Output
  IC2 (CPU Pin 31)⟷Tr2⟷FPC-2
  Check FPC wire and soldering failure

- Data BAck ISO signal: Not change
  IC2 (CPU Pin 32)⟷FPC2 (SUB FPC)
  IC-1 (AIC Pin 19—Pin 21)⟷DX Contact Board
  Check FPC wire and soldering failure.
- LED not illuminated when Flash charging completed
  IC1 (AIC Pin 38)⟷R19⟷Shoe S.P⟷Top Cover Shoe Contact
  * Check lead wires and soldering failure.
- There is no change or difference in shutter time in MANUAL mode.
  FPC-1 (MAIN)⟷S-Board
- There is no light from the flash.
  Improper contact of shutter X switch, GND LINE
  Improper contact of Shoe SP⟷Top Cover Shoe
- Defective M-Magnet
  IC-2 (CPU Pin 21)⟷Tr5⟷Tr6⟷F-Mg⟷FPC (V_{BB})
  Black lead wire Red lead wire

  * Check lead wires and soldering failure

  Mechanical defect: not attract armature

WIRING DIAGRAM